

EXHIBIT B

## EXHIBIT B

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IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF TEXAS  
DALLAS DIVISION

PRINTING RESEARCH, INC.	X	
HOWARD W. DEMOORE and	X	
RON M. RENDLEMAN	X	
	X	CIVIL ACTION NO.
VS.	X	3-99CV1154-M
	X	
WILLIAMSON PRINTING CORP.,	X	
BILL L. DAVIS and	X	
JESSE WILLIAMSON	X	

VIDEOTAPED  
ORAL DEPOSITION  
OF  
JESSE SPEIGHT WILLIAMSON

October 18, 2000

ANSWERS AND VIDEOTAPED DEPOSITION OF JESSE  
SPEIGHT WILLIAMSON, produced as a witness at the instance  
of the Plaintiff, being duly sworn, was taken in the  
above-styled and numbered cause on the 18th day of  
October, 2000, from 9:23 a.m. to 5:12 p.m., before  
Christina Cheatham, a Certified Shorthand Reporter in and  
for the State of Texas, via machine shorthand, at the  
offices of Worsham, Forsythe, Wooldridge, L.L.P., located  
at 1601 Bryan Street, Energy Plaza, 30th Floor, in the  
City of Dallas, County of Dallas and State of Texas.

**COPY**

## A P P E A R A N C E S

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-AND-

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ALSO PRESENT: Mr. Bill Davis  
Mr. Howard W. DeMoore  
Mr. Dave Douglas  
Mr. Mike Imken, Videographer  
Mr. Chong Kwak, Videographer  
Mr. Ron Rendleman

## I N D E X

WITNESS: JESSE SPEIGHT WILLIAMSON

PAGE

Examination by Mr. Harris

4

## E X H I B I T S

NO. DESCRIPTION

PAGE

1 United States Patent 5,370,976

19

2 Letter - Williamson to Bird 12/5/96

93

3 United States Patent 5,630,363

124

4 Memorandum to Bob Emrick and  
Jim Johnson - 1/26/95

145

5 Reissue Declaration

171

6 Joint Declaration

179



## P R O C E E D I N G S

VIDEOGRAPHER: On the video record at 9:23 a.m., October 18, 2000, tape number one. This is the videotaped deposition of Jesse Williamson taken in the matter of Printing Research, Inc., et al versus Williamson Printing, Inc., et al, Cause Number 3-99CV1154-M being heard in the U.S. District Court of the Northern District of Texas. This deposition is being held at 1601 Bryan Street, Dallas, Texas, at the time and date indicated on the video screen.

If the attorneys present would please state their appearance.

MR. PINKERTON: John Pinkerton, Worsham, Forsythe & Wooldridge, representing the defendants.

MR. FALK: Bob Falk, Falk & Fish, representing defendants.

MR. SWEENEY: Marty Sweeny, Cozen and O'Connor, representing the plaintiffs.

MR. WILSON: Steven D. Wilson, Locke Liddell & Sapp, representing plaintiffs.

MR. HARRIS: Bill Harris, more formally William D. Harris, Jr., also of Locke Liddell & Sapp, for the plaintiff.

JESSE SPEIGHT WILLIAMSON,  
having been sworn to testify the truth, testified as

1 follows:

2 EXAMINATION

3 BY MR. HARRIS:

4 Q. Good morning, sir.

5 A. Good morning.

6 Q. Would you state your name and your residence for  
7 the record, please.

8 A. Jesse Speight, S-p-e-i-g-h-t, Williamson, 5738  
9 Caruth, Dallas, Texas.

10 Q. I may come back to some background details  
11 later, but I think I'll kind of start a little bit in the  
12 middle so we can get into the spirit of things. What is  
13 your position?

14 A. I'm president --

15 Q. Go ahead, sir.

16 A. I'm sorry, excuse me.

17 Q. What is your position will do, since that means  
18 something to you?

19 A. I'm president of Williamson Printing.

20 Q. And Williamson Printing is a large printing  
21 concern here in Dallas, correct?

22 A. Yes, sir.

23 Q. Do you have offices in other places?

24 A. Yes, sir.

25 Q. Where?

TOP SECRET

1           A.    Houston, San Antonio, New York, Denver, I  
2 believe that's it.

3           Q.    That's it?

4           A.    Yes.

5           Q.    Do the other locations print?

6           A.    No, sir.

7           Q.    The printing -- I gather it being a printing  
8 concern, print is principally what you do; is that  
9 correct, the company prints?

10          A.    Yes, we print.

11          Q.    That's your principal business, printing?

12          A.    Yeah, but it's a little confusing because  
13 printing is just a portion of our process.

14          Q.    I would like to know a little more about that.  
15 Does your process comprise some other elements?

16          A.    Yes, sir.

17          Q.    Would you tell me what those elements are,  
18 please?

19          A.    Well, we receive either transparencies or a disk  
20 from a client, we'll process it in our prepress area. We  
21 either make color separations or we -- and then we  
22 assemble the job, we'll show proofs, which is what we  
23 call our prepress.

24                   After that's approved it goes to the press,  
25 and then after the press it goes to the bindery. And

1 from the bindery it either ships or goes to our  
2 fulfillment operation.

3 Q. Any other elements?

4 A. I think that's pretty --

5 Q. And of course that is not throwing away the  
6 actual printing step. You do print?

7 A. Right, that was the press part of it.

8 Q. You have a number of presses here in Dallas?

9 A. Yes, sir.

10 Q. How many?

11 A. Offset presses?

12 Q. Well, that's a good start.

13 A. Six -- six in our facility.

14 Q. I know you have some Heidelberg presses. How  
15 many of those do you have?

16 A. Oh, excuse me. We have six Heidelberg sheet-fed  
17 presses. We have two M-A-N web presses, and we have two  
18 Heidelberg Harris web presses.

19 Q. Is that M-A-N what I was calling MAN-Roland?

20 A. They're -- it's not the same, but it's the same  
21 company.

22 Q. Affiliated?

23 A. Well, MAN owns MAN-Roland.

24 Q. As opposed to a two a woman. If I refer to  
25 woman Roland, well you'll know I'm just kidding, okay?

FOOTNOTES

1 A. I'll understand what you're talking about.

2 Q. Okay.

3 A. Yes, sir.

4 Q. Because there's no periods there. I was told  
5 yesterday, it's just M-A-N, all solid caps.

6 A. Yes.

7 Q. I'm sure they're not chauvinists, really. Now,  
8 that's not a question, of course.

9 What products do you sell?

10 A. We're a general commercial printer, so it's a  
11 whole wide range of printing products.

12 Q. What mechanical products do you sell?

13 A. I don't understand the question.

14 Q. Do you sell any mechanical products? I  
15 understand you're principally a printer and then you have  
16 all of those elements that you also practice that you  
17 described to me a moment ago. And now I'm asking you if  
18 you're in the business of selling any hard goods?

19 A. Oh, yeah, we sell hard goods. Are you talking  
20 about --

21 Q. Yeah, mechanical devices.

22 A. -- capital investment type equipment.

23 Q. Yeah, right.

24 A. No, sir.

25 Q. Well, for example, you know there's a -- in this

1 case at issue some apparatus, some process, and speaking  
2 to the apparatus parts of it, well, it's my belief and  
3 I'd like for you to consider it, that that comprises a  
4 press with various configuration insofar as what comes  
5 first and what comes second and so on.

6 Do you sell any equipment of that type?

7 MR. PINKERTON: Object to the form as being  
8 vague and indefinite.

9 Q. (By Mr. Harris) Do you sell any presses?

10 A. Yes.

11 Q. Where do you sell presses to, to whom?

12 A. Well, to -- when we replace a press we sell the  
13 press or -- either we sell it or trade it in.

14 Q. I see.

15 A. And other equipment.

16 Q. Kind of like some of us might handle our  
17 automobiles?

18 A. Yes, sir.

19 Q. We get a new one and we get rid of the old one,  
20 one way or the other?

21 A. Yes, sir.

22 Q. Or we put it out in the garage and hope it  
23 becomes an antique?

24 A. Yes, sir.

25 Q. I know in this case there's a coater and one

TOP SECRET

1 form of it that might be at issue is what we call  
2 in-house the Rendleman coater and it also has a  
3 commercial name that you're probably familiar with. To  
4 generalize, do you sell any coaters?

5 A. No.

6 Q. Did you ever make a coater, your company --

7 MR. HARRIS: By the way, Counsel -- strike  
8 that for the moment. Is this witness handling certain  
9 30(b)6 questions?

10 MR. PINKERTON: Yes, the ones we had  
11 designated last time on the record. I don't have that  
12 list.

13 MR. HARRIS: I don't have it in my mind  
14 either.

15 MR. PINKERTON: But we went through the  
16 list and he and Bill were both designated as 30(b)6  
17 witnesses on a large number of those 17 different topics.

18 MR. HARRIS: So if I hit one of those  
19 topics he's been designated on, I'm getting not only his  
20 answer but a 30(b)6 answer?

21 MR. PINKERTON: Correct.

22 Q. (By Mr. Harris) Is there any magic to all of  
23 that garbage we talked about then? Do you understand --  
24 well, you speak for the company on certain designated  
25 things. Being the president you tend to anyway, but

1 under the law you bind the company on certain things as a  
2 company representative.

3 And you don't even have to have actual  
4 personal knowledge on those things if you have acquired  
5 your knowledge from others in the company or however,  
6 because it's hard to take a corporation's deposition, it  
7 has to be through a person.

8 Then you have been designated on some of  
9 those topics and I -- when we run across one of them, we  
10 need not even separately consider that that's one of  
11 them, because you're going to answer the questions in any  
12 event either way unless your lawyer tells you to the  
13 contrary, correct?

14 A. Yes, sir.

15 Q. Okay.

16 MR. HARRIS: I think I'm satisfied,  
17 Mr. Pinkerton, if you are, to go ahead on that.

18 MR. PINKERTON: Yes.

19 Q. (By Mr. Harris) Have you made the effort to  
20 develop a coater within your company?

21 A. Yes.

22 Q. What type of steps have you taken to develop a  
23 coater?

24 A. Well, I conceived an idea. I got with Bill and  
25 we went over the concept and came up with a design for



1 the coater.

2 Q. When was that?

3 A. Which part?

4 Q. When you came up with the coater?

5 A. Well, I mean, I came up with the idea in -- I  
6 think it was May of '92, might have been January. I  
7 can't -- it's either -- March is very busy for us, so  
8 it's either January or May.

9 Q. In '92?

10 A. Yes, sir.

11 Q. You conceived a coater itself or you made a  
12 coater?

13 A. No, we conceived the idea in '92.

14 Q. Did you document it in any way?

15 A. What do you mean by documentation?

16 Q. Did you make any paper relating to it? Did you  
17 have any drawings?

18 A. No, sir.

19 Q. Did you have any printed or handscrawled  
20 explanation of what it was about?

21 A. In '92?

22 Q. Yes.

23 A. Yes, we did.

24 Q. Where is that?

25 A. It's -- we can't find it. I don't know where it

1 is.

2 Q. What persons saw that, your documentation, what  
3 persons saw it?

4 A. I don't know if any -- besides Bill Davis and I,  
5 I'm not for sure.

6 Q. How long has it been unfindable?

7 A. We didn't look for it until the lawsuit was  
8 filed -- so was it '99?

9 Q. Did you ever make an effort to build the coater  
10 that you say you conceived?

11 A. Was there an effort?

12 Q. Did you ever make an effort to build the coater  
13 that you say you conceived?

14 MR. PINKERTON: You are talking about  
15 Williamson -- the Williamson Printing Company?

16 THE WITNESS: Yes, we did, but -- I mean,  
17 if you're talking Williamson ourselves?

18 Q. (By Mr. Harris) Yes.

19 A. Internally?

20 Q. Yes.

21 A. No.

22 Q. Did anyone?

23 A. Build our design?

24 Q. You call it a design? You designed a coater?

25 A. Yes.

FOOTER 9045160

1 Q. Okay. Well, then build your design, that's  
2 fine?

3 A. Yes, Printing Research.

4 Q. Were they the first to do that, to build you a  
5 design?

6 A. They were the only ones we requested that from.

7 Q. You sent them drawings?

8 A. No, sir.

9 Q. You sent them written specifications that were  
10 detailed enough to describe a coater?

11 A. No, sir, we relied on them to do the mechanical  
12 drawings.

13 Q. Are you a mechanical draftsman, sir?

14 A. No, not at all.

15 Q. Now, Mr. Davis can draw some, can't he?

16 A. Yes, sir.

17 Q. Did he make any mechanical drawings about the  
18 coater?

19 A. He made -- he probably made some mechanical  
20 drawings, not detailed drawings.

21 Q. Would you explain to me what you mean by  
22 probably?

23 A. Well, when we -- when I sat down with him after  
24 coming back from Europe we reviewed alternative -- we  
25 reviewed different concepts that could be used, either

1 sliding in an anilox system, bolting it on, bringing it  
2 in from the top with a chain, so little drawings were  
3 made of all these different ideas and designs and  
4 concepts.

5 Q. Was that in 1992, sir?

6 A. Yes, sir.

7 Q. And apart from anything you might have sketched  
8 or drawn or whatever, I take it you still don't have any  
9 drawings or sketches that were made by Mr. Davis?

10 A. We cannot find those.

11 Q. When was it in 1992 that you had this eureka?

12 MR. PINKERTON: Object to form.

13 THE WITNESS: I think it was in April  
14 of '92. Like I said, it was either before March or  
15 April.

16 Q. (By Mr. Harris) When did you -- well, let me  
17 try it a little bit different. What did you do in  
18 furtherance of this idea that you have mentioned to me  
19 over the time that passed? Did you do anything in the  
20 rest of '92 to further the idea or bring it to the table?

21 A. Yes, sir.

22 Q. What?

23 A. In -- well, in April of '92 I went to Offenbach  
24 with Harry Bowyers with Wolstenholmes, and I had --  
25 Offenbach is where the MAN-Roland sheet-fed press --

FOOTNOTES

1 presses are made, and I had never been there before, and  
2 Harry wanted me to go with him because of our WIMS  
3 process.

4 Harry makes metallics and he had seen some  
5 pieces that we had done, and his interest was to promote  
6 that process.

7 Q. Let me interrupt a minute. Does metallics mean  
8 inks?

9 A. It's a zinc or aluminum or something that's  
10 carried in a vehicle --

11 Q. Carried in some kind of liquid, isn't it?

12 A. Yes.

13 Q. Go ahead, sorry.

14 A. So Harry said one percent of their business --  
15 they sell 50 percent of the market in the world and he  
16 said one percent of their business was offset or printing  
17 inks, flexo and offset and gravier and he said any  
18 increase they could get was huge for them because it was  
19 such a small part of their business.

20 So he was very interested in our process.  
21 He wanted me to go to MAN with him and try to promote  
22 them on using his process in a show that was in  
23 January -- in September of '93.

24 So I met Harry in Frankfurt. I went to  
25 Offenbach with him, and when I went to the plant Roland

1 had their new press, which I had never seen, never heard  
2 of, and it had a anilox system at the end of the press.

3 And they had some samples of metallics that  
4 they had run, which was incredible volume, and one of our  
5 goals for our WIMS process was to increase the metallic  
6 look. We thought we were lacking in that.

7 So I said, gosh, that's a -- I wish we  
8 could get that metallics. I asked MAN if they thought it  
9 was possible to put a unit upstream, and I discussed that  
10 with them pretty lengthy, and so when I came back to  
11 Dallas, Bill and I discussed it and then through that  
12 year we were working with Harry Bowyer with Wolstenholmes  
13 in regards to --

14 Q. Working with who?

15 A. Harry Bowyer with Wolstenholmes.

16 Q. In England?

17 A. In England.

18 We -- he -- again, this is in our WIMS  
19 process. We were trying to improve the powder size and  
20 we found out that the --

21 Q. Excuse me just a minute because we don't have a  
22 definition for the WIMS process. Is that the process  
23 that you have an earlier patent on --

24 A. Yes.

25 Q. -- than the one involved here?

1 A. Yes, sir, Williamson Integrated Metallics.

2 Q. Right, and that's a process that as a practical  
3 matter was practiced at least at the outset by  
4 lithography, was it not?

5 A. Yes, sir.

6 Q. And the patent itself doesn't even describe the  
7 method of printing, it just talks kind of general about  
8 printing a time or two, and it's mostly all of the --  
9 some rather complex preprint steps; is that true?

10 MR. PINKERTON: Object to the form of the  
11 question. Vague and indefinite. General and compound.

12 MR. HARRIS: Would you tell me if he gave  
13 an answer?

14 THE COURT REPORTER: I don't have an  
15 answer.

16 MR. PINKERTON: I object to the question.

17 MR. HARRIS: If you understand the  
18 question, I'd like to have an answer.

19 MR. PINKERTON: Read the question back,  
20 please.

21 (Read back requested text)

22 Q. (By Mr. Harris) Would you rather me simplify  
23 it? Would you like me to?

24 A. I'm sorry. I didn't hear what you said.

25 Q. Would you rather me simplify it?

1 A. Yeah, because I don't think that statement is  
2 actually true.

3 Q. Okay. It was my impression that what it covered  
4 it primarily preparatory and preprint steps rather than  
5 the printing process, per se.

6 A. I disagree with that.

7 Q. You disagree with my understanding?

8 A. Yes, sir.

9 Q. Would you explain to me what it tells about the  
10 printing?

11 A. Well, it -- you have to print the metallics  
12 upstream from the offset units because of the opacity of  
13 the metallics.

14 Q. That doesn't say that in the patent, though,  
15 does it?

16 A. I don't know. I would have to see the patent.

17 (Deposition Exhibit 1 marked)

18 MR. HARRIS: Let the record reflect that we  
19 have marked as Williamson Exhibit 1, and I guess we  
20 better make it -- we can't even make it J. Williamson  
21 because the other Williamson is J. Williamson, too. Make  
22 it Jesse Williamson Exhibit 1.

23 MR. PINKERTON: I want to object to this  
24 question and this line because, of course, Mr. Williamson  
25 even though he's not -- he's not trained in terms of



1 patent law in interpreting this document, even though he  
2 is an inventor on the patent, and he's reading it now  
3 briefly, so I don't know to what extent you want him to  
4 study the patent to answer your questions.

5 MR. HARRIS: Well, I -- it's my hope -- by  
6 the way, I'm not asking for a legal interpretation of  
7 what the claims cover or anything like that.

8 Q. (By Mr. Harris) I just want to know if in the  
9 patent anywhere it talks about printing and emphasizes  
10 printing?

11 A. Every place I look it says printing, first  
12 abstract -- the images reproduced by printing.

13 Q. Let's go through that.

14 A. Okay.

15 Q. In the printed explanation beginning on page --  
16 well, column one of the patent?

17 MR. PINKERTON: He wanted to start back at  
18 the abstract, Bill.

19 MR. HARRIS: Well, I don't care where he  
20 wants to start.

21 MR. PINKERTON: That's where he started.  
22 He started there, is my understanding. Isn't that right,  
23 Jesse?

24 MR. HARRIS: I want to start there and he  
25 can go back and start where he wants to when he wants to.

1 MR. PINKERTON: Okay. I thought you wanted  
2 his answer. You want your version, okay.

3 MR. HARRIS: Well, I'm sure it will wind up  
4 being a blend, Mr. Pinkerton.

5 MR. PINKERTON: Well, he was answering your  
6 question and he said, yeah, I see printing all over, and  
7 he said, I see it right there in the abstract and now  
8 you're taking him somewhere else.

9 MR. HARRIS: Well, first of all, I think  
10 it's fair enough to take him to the printed material and  
11 if he wants to refer to anything else he can.

12 MR. PINKERTON: Again --

13 MR. HARRIS: Why don't you spend a little  
14 while looking it over while Mr. Pinkerton is talking and  
15 maybe we'll be able to get together in some way to do  
16 this.

17 MR. PINKERTON: In fairness to the witness,  
18 you've got an abstract, you got drawings, you've got  
19 specifications --

20 MR. HARRIS: Nobody has said that he can't  
21 see those things, Mr. Pinkerton.

22 MR. PINKERTON: Would you mind if I finish  
23 my statement, please, sir?

24 MR. HARRIS: Well, Only mildly.

25 MR. PINKERTON: Okay. Regardless of

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1 whether you mind, the patent has many different parts and  
2 interpretation of the patent is something that we all  
3 know involves some legal considerations, involves how it  
4 would be read by a person in the ordinary skill in the  
5 art.

6 So what the patent teaches is not an easy  
7 subject and certainly not one that a layman on looking at  
8 the patent for a few minutes is going to completely  
9 answer. So I think it's unfair to be asking this witness  
10 that question. I object to it on that basis.

11 MR. HARRIS: I believe he's an inventor.

12 MR. PINKERTON: He is an inventor, and I  
13 said that he's an inventor, but again he doesn't  
14 understand the law with respect to interpretation of the  
15 patent, I don't think.

16 MR. HARRIS: If he doesn't understand this  
17 patent --

18 MR. PINKERTON: No, I didn't say that. I  
19 said he doesn't understand the law.

20 MR. HARRIS: If he doesn't understand it,  
21 we'll go on to another question.

22 MR. PINKERTON: I understand, but I said  
23 the law, the legal aspect of it.

24 MR. HARRIS: Well, I even prefaced I didn't  
25 want any legal statements.

1 MR. PINKERTON: I just think, you know, if  
2 you're asking for the teaching of the patent, you have to  
3 go through the full patent --

4 MR. HARRIS: I didn't say teaching. The  
5 word teach, I don't believe, is in my question.

6 MR. PINKERTON: It is certainly part of  
7 your question whether or not the patent discloses,  
8 teaches, printing. Isn't that what you asked?

9 MR. HARRIS: Well, I'm not going to make a  
10 real big bet on it, but I thought -- I thought what I  
11 asked for what it disclosed, what the patent disclosed,  
12 but --

13 MR. PINKERTON: Is there a difference?

14 MR. HARRIS: -- maybe I'm mistaken.

15 MR. PINKERTON: Is there a difference?

16 MR. HARRIS: I'm not going to argue law or  
17 points with you about what it -- or English points.

18 MR. PINKERTON: No, there's no reason to  
19 argue about it, but it's a complicated issue --

20 MR. HARRIS: Disclosed is what I'm talking  
21 about. What does it say in here?

22 MR. PINKERTON: Well, isn't disclosed a  
23 person of ordinary skill in the art?

24 MR. HARRIS: I didn't say that.

25 MR. PINKERTON: I know. That's the problem

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1 in asking the question, but --

2 MR. HARRIS: Do you want to phrase the  
3 question for him?

4 MR. PINKERTON: No, sir. It's your -- you  
5 can do it. I just think it needs to be fair for the  
6 witness.

7 MR. HARRIS: Well, I still -- well, I think  
8 I -- we ought to let you win on that one, Mr. Pinkerton.

9 Q. (By Mr. Harris) Why don't you start at the very  
10 first of this patent, anywhere you want, the abstract, I  
11 think, is where you were starting, and tell me what it  
12 discloses about printing as such?

13 A. Do you want me to read it?

14 Q. No, I just want you to tell me the part that  
15 tells about printing.

16 A. Well, the first sentence. A method of  
17 reproducing on a substraight an image incorporating  
18 metallic inks. Last sentence.

19 Q. Okay.

20 A. Images reproduced by printing each of the  
21 process color separation films and metallic separation  
22 film to a substraight.

23 Q. Okay. Shall we go to the next page, then,  
24 wherever you like, the next page?

25 A. Yes, sir. In regards to printing?

1 Q. Yes. Isn't this the next page?

2 A. Yes, sir. Printing, print WIMS silver, print  
3 yellow, print WIMS gold, print remaining colors any  
4 order --

5 Q. Where are you pointing to?

6 A. The bottom right.

7 MR. PINKERTON: Box 42, 44, 46, and 48.

8 MR. HARRIS: Thank you for your testimony.

9 MR. PINKERTON: It's clear right there on  
10 the drawing.

11 MR. HARRIS: Well, if it's clear on the  
12 drawing, you don't have to say anything about it, do you?

13 MR. PINKERTON: That's just the ones he  
14 read. I was just trying to help you out.

15 MR. HARRIS: Were you?

16 MR. PINKERTON: Yes, sir.

17 MR. HARRIS: Okay.

18 MR. PINKERTON: Avoid wasting time.

19 MR. HARRIS: Then thank you. We are not  
20 wasting time, you are.

21 Q. (By Mr. Harris). Has your counsel correctly  
22 identified the points on figure one?

23 A. 42, 44, 46, and 48 in regards to press.

24 Q. All right. How about figure two, the next  
25 sheet?

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1 A. Well, actually -- what's the question?

2 Q. I wanted to know what, if anything, this patent  
3 disclosed regarding the printing process itself as  
4 opposed to preprint or preparatory steps. Do you  
5 understand?

6 A. Well, part of the whole system is part of the  
7 prep, too. I mean, that's --

8 Q. Well, I've asked you to set out -- to cut out  
9 the preparation steps and go to the printing step. I  
10 certainly agree that preparation has to do with printing  
11 finally.

12 A. Okay. The next one, 142, 144, 146, 148.

13 Q. And that's in the lower right?

14 A. Yes, sir, same position as other.

15 MR. PINKERTON: That's sheet two of two.

16 MR. HARRIS: Yes.

17 THE WITNESS: That's sheet three of two.

18 Q. (By Mr. Harris) They are just talking about the  
19 drawings there, Mr. Williamson. They say sheet two of  
20 two at the top, but you're right, it's the third page.

21 A. Excuse me.

22 Q. Now I'd like to go to the fourth page, which is  
23 marked one and two. I'll help you by --

24 MR. PINKERTON: Go line by line. Go line  
25 by line, if you would, please sir.

1 THE WITNESS: The very first line is  
2 metallic color printing process, and then that's --

3 Q. (By Mr. Harris) Okay. That's -- as a matter of  
4 fact, that's lines -- since he wants you to go line by  
5 line, that's lines five and six, I do believe, of column  
6 one and seven perhaps.

7 A. The sentence I just gave is line one, isn't it?

8 Q. Right.

9 A. And then --

10 Q. Well, it's not line one. See those little  
11 numbers that run down in the middle between these  
12 columns?

13 A. Yes, sir.

14 Q. The 5, 10, 15, 20, that's the way the patent  
15 office prints these things to identify the line.

16 A. Right.

17 Q. Right, wrong or indifferent.

18 A. I understand that, but wouldn't that be one.

19 Q. Probably two.

20 A. Or two, all right. The first line under column  
21 one is printing. The next paragraph, the first sentence  
22 is the present invention relates to a metallic color  
23 printing process. This method produces an improved  
24 metallic image by printing the subtractive primary  
25 colors. That whole sentence is about printing.



1 Q. Okay.

2 A. Do you want me to go line by line on the whole  
3 background of the invention on this?

4 Q. Well, read it line by line if that's what you  
5 need to do, that's fine, in order to identify it.

6 A. Okay.

7 Q. By the way, you have read this before, haven't  
8 you?

9 A. Yes, sir, I don't read it on a daily basis.

10 Line 50, printed color reproduction is  
11 based on many of the same principles as film color  
12 reproduction. That whole paragraph, really, from 50  
13 through 60 is in regards to -- well --

14 Q. 60 in which column?

15 A. Under column one.

16 Q. Okay.

17 A. Column two, lines 7 through 17, next paragraph.

18 Q. By the way, as we go this is under the topic  
19 called background of the invention, isn't it?

20 A. Yes, sir.

21 Q. And what is stated or been -- you pointed to  
22 there is known subject matter related to color printing,  
23 isn't it?

24 A. Yes.

25 Q. So it's reciting sort of a little tutorial

1 before you go into the main part; is that fair?

2 A. Yes, sir.

3 Q. Fine. Go ahead.

4 A. 17 through 25, next paragraph 27 through 34, 35,  
5 first part of the paragraph where 35 is.

6 Q. Of what?

7 A. The paragraph where number 35 is, the first  
8 sentence of that refers to printing.

9 Q. The word printing, right, in the sentence?

10 A. Yes, sir. That whole paragraph refers to  
11 printing.

12 Q. Well, it also refers to all of the preparatory  
13 steps, doesn't it, or the preparatory steps before you  
14 print?

15 A. Just very briefly, it's not concise.

16 Q. What's that now?

17 A. It's not concise on how we do it in that  
18 paragraph.

19 Q. Precise on how to do what?

20 A. Precise on how the preparatory work is done.

21 Q. Where does it talk about the printing, per se?

22 A. The system known as metallic integrated printing  
23 process has been developed for the reproduction of  
24 metallic colors.

25 Q. Says it requires numerous steps, doesn't it?

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1 MR. PINKERTON: The next sentence.

2 THE WITNESS: The next sentence. I said  
3 the first sentence.

4 Q. (By Mr. Harris) Yes, doesn't it?

5 A. Uh-huh.

6 Q. And then it says, first the designer marks up  
7 the artwork that he cropped to designate those areas  
8 where the MIPP system is required, that is metallic  
9 colored areas. Now, that's a preparatory step, is it  
10 not, the artwork?

11 A. Could or couldn't be.

12 Q. And then it says next a conventional four-color  
13 separation is produced of the artwork; is that in the  
14 actual printing?

15 A. That's in the prepress.

16 Q. And then each separation is then compared to the  
17 original artwork to see which separation gives the best  
18 representation of the metallic colors. That's prepress,  
19 too, isn't it?

20 A. Yes.

21 Q. And then based on the object color and the  
22 original photograph and the color requirements of the  
23 final print, a determination is then made whether gold or  
24 silver is required. That's prepress, too, isn't it?

25 A. No. I mean, it could be both ways there.

1 Q. Let's go to the next one. Most shades of gold  
2 can be obtained from silver and yellow. I don't know  
3 whether that's just a statement or what the believe fact  
4 or whether that's a -- an observation or a truth. What  
5 is it?

6 A. I disagree with that.

7 Q. You disagree with him?

8 A. Yes.

9 Q. But anyway, it's not printing, per se, is it?

10 A. Yes.

11 Q. It is printing? It's talking about what you'd  
12 get if you put the two together, isn't it?

13 A. Yes, sir.

14 Q. It doesn't even say how you'd put them together,  
15 though, does it?

16 A. It's -- they're talking about how it reacts on  
17 press.

18 Q. Does that say so?

19 A. That's what I believe they're referring to.

20 Q. You believe that's what it's referring to, but  
21 it doesn't say so?

22 A. Yes.

23 Q. Okay.

24 A. That's where --

25 Q. However --

1           A.    That's where the shades are going to come up is  
2 on the press.

3           Q.    However, a high percentage of yellow on silver  
4 greatly reduces the metallic brilliance. Again, he's  
5 stating an opinion, isn't he?

6           A.    On press.

7           Q.    I don't know whether it's on the press or not.  
8 He doesn't say on the press, does he?

9           A.    That's what he's referring to.

10          Q.    He doesn't say on the press, does he?

11          A.    That's what he's referring to.

12          Q.    He doesn't say on the press, though, does he,  
13 literally?

14                   MR. PINKERTON:  Objection to the question  
15 as being asked and answered now twice.

16                   MR. HARRIS:  Well, it's been changed now.  
17 I've added the word literally.

18                   MR. PINKERTON:  Oh, literally.

19                   MR. HARRIS:  Literally.

20                   MR. PINKERTON:  So the question is --

21                   MR. HARRIS:  Yes.

22                   THE WITNESS:  If you take that sentence out  
23 of context, I agree with you.

24           Q.    (By Mr. Harris) Okay. I think that's what  
25 literally means, probably. Thank you.

1 In addition, silver has a gray value of  
2 approximately 30 percent that tends also to reduce the  
3 metallic brilliance and thereby dirty color. Do you  
4 happen to agree with him?

5 MR. PINKERTON: Agree with him? Who is  
6 him? Objection -- I'm going to object to the form of the  
7 question.

8 Q. (By Mr. Harris) Do you agree with the  
9 statement?

10 A. I probably did then. I don't now.

11 MR. PINKERTON: Counsel, let me interpose  
12 an objection to this entire line of questioning as being  
13 irrelevant and a waste of time. Would you please give me  
14 a running objection on this line of questioning relating  
15 to the teaching of --

16 MR. HARRIS: Not the teaching.

17 MR. PINKERTON: The disclosure of the  
18 teaching, which is what you're all going through, of the  
19 976 patent.

20 MR. HARRIS: Sure, I will do that.

21 MR. PINKERTON: Thank you.

22 MR. HARRIS: And I will add that if you  
23 think it's irrelevant I don't want to hear the name in  
24 the --

25 MR. PINKERTON: Well, you'll hear the WIMS

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1 patent.

2 MR. HARRIS: You're going to have it your  
3 way, but not my way.

4 MR. PINKERTON: No, no.

5 MR. HARRIS: Let's both have a cut at it if  
6 we're going to talk about --

7 MR. PINKERTON: Well, your cut's a little  
8 different. Your cut's an irrelevant cut and mine's  
9 relevant. There's a difference.

10 MR. HARRIS: You don't think you're a  
11 little prejudice, do you, Mr. Pinkerton?

12 MR. PINKERTON: I think that's a correct  
13 statement what I just said, but this approach is totally  
14 irrelevant to the lawsuit.

15 Q. (By Mr. Harris) Going to the next paragraph,  
16 since line by line is best, apparently. After the  
17 four-color separations are made two separations used to  
18 print the metallic inks must be developed from two of the  
19 four separations. That's still talking in terms of  
20 preprint, isn't it?

21 A. I would say it's referring to printing.

22 Q. Well, it doesn't say you print. It says before  
23 you print?

24 A. It says two separations used to print the  
25 metallics inks must be developed.

1 Q. It says after the four-color separation remain,  
2 two separations used to print the metallic inks must be  
3 developed from two of the four separations. Now, is that  
4 after the printing that they develop it from two of the  
5 four separations?

6 MR. PINKERTON: Object to the form.

7 THE WITNESS: No.

8 Q. (By Mr. Harris) So they're really referring to  
9 something that you must do before you print; isn't that  
10 true?

11 A. Printing on a press.

12 MR. PINKERTON: Object to the form.

13 Q. (By Mr. Harris) I didn't understand that. I'm  
14 sorry, sir. I was listening to your lawyer.

15 A. The proofing process, some people could say  
16 that's a printing process. In our particular plant, we  
17 don't call it that.

18 Q. In your particular what?

19 A. In our plant we don't call it that.

20 Q. What do you call it?

21 A. Well, proofing.

22 Q. Proofing? Not quite yet printing?

23 A. In our plant we call it proofing. Some people  
24 call it printing.

25 Q. I see. Do those same people mix up a cat and a

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1 dog?

2 MR. PINKERTON: Object to the form.

3 MR. HARRIS: I withdraw the question.

4 MR. PINKERTON: Good. Make a relevance  
5 objection, too.

6 Q. (By Mr. Harris) Then it goes on typically the  
7 cyan -- how do you pronounce that -- or a black  
8 separation would give the best basis for developing the  
9 silver separation and either the yellow or the magenta  
10 for the gold separation. Is that true, as far as you  
11 know?

12 A. At that time I think it was probably a true  
13 statement.

14 Q. Is that preprint -- or if it would make it  
15 easier, is that print, per se?

16 A. They are referring to the process of needing to  
17 do that because of the process of printing.

18 Q. Well, that's because they're going to print,  
19 isn't it?

20 A. Yes.

21 Q. But they hadn't done it at the point that  
22 they're talking about that you have to do that in  
23 accordance with what they want to accomplish before you  
24 print, right?

25 A. It's done before it's printed.

1 Q. The selective separations are then duplicated to  
2 become the gold and silver separations. Is that part of  
3 the same thought?

4 A. Yes, sir.

5 Q. These separations may require modifications to  
6 remove image areas where a specific metallic effect is  
7 not required. He is just kind of giving us a lecture  
8 there, isn't he?

9 MR. PINKERTON: Object to the form.

10 Q. (By Mr. Harris) What's the purpose of that  
11 sentence? What does it mean to you? What does that  
12 sentence mean to you?

13 A. Well, you don't -- you delete any area -- well,  
14 the way the sentence reads they are removing metallics  
15 where they didn't want it to print.

16 Q. Moving metallics what?

17 A. They're deleting areas of the metallic that they  
18 don't want the metallic to print.

19 Q. Then they speak of comparison where the original  
20 transparency may indicate the need to enhance some large  
21 area so as to improve the final metallic effect. What  
22 does that mean?

23 A. When you print it, that the metallics might not  
24 be showing up as well.

25 MR. PINKERTON: Counsel, I again object on

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1 the basis of relevancy.

2 MR. HARRIS: You have your running  
3 objection.

4 MR. PINKERTON: I was wondering if I have  
5 it. Thank you.

6 Q. (By Mr. Harris) The MIPP system anticipates the  
7 softening of mask edges of metallic colors to avoid sharp  
8 cutout effect when the final result is printed. What  
9 does that mean?

10 A. Well, it sounds like they're -- or it looks as  
11 though they are softening the edges of their mask.

12 Q. Would that be a preprint step?

13 A. I would say probably.

14 Q. Probably what?

15 A. Probably.

16 Q. Probably.

17 A. Doesn't necessarily have to be.

18 Q. Now, this MIPP system, you were familiar with at  
19 the time that you made your application for this 976  
20 patent, true?

21 A. Yes, sir.

22 Q. And you went to some length to make a rather  
23 full explanation in order to distinguish it from what you  
24 had developed or the ideas that you had come up with; is  
25 that true? That's what this is all about, isn't it, this

1 language that we are reading now?

2 A. I believe so.

3 Q. So maybe we can truncate this a little bit by  
4 going down the summary of the invention over in column  
5 four. First, perhaps we should be sure we agree that the  
6 rest of column three and down to the summary of the  
7 invention is really directed to the MIPP system or it's  
8 comings and shortcomings; is that true?

9 MR. PINKERTON: I object to that question  
10 as being inaccurate in at least one respect, Bill, and  
11 that is at the top of column four, lines -- looks like  
12 two through seven talk about the printing process.

13 MR. HARRIS: Well, it talks about a need  
14 exists for something, doesn't it?

15 MR. PINKERTON: For a process, uh-huh.

16 MR. HARRIS: I'm sorry. I really kind of  
17 thought I covered that when I said the comings and short  
18 comings, but maybe not.

19 MR. PINKERTON: Well, I think this -- that  
20 obviously refers to --

21 MR. HARRIS: Well, to me it doesn't.

22 MR. PINKERTON: The process of the patent  
23 which sets up the rest of the patent and the summary of  
24 the invention.

25 MR. HARRIS: Well, it certainly probably

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1 was put there by the person that wrote it for a reason,  
2 I'll agree with you on that, and it talks about a need  
3 exists.

4 MR. PINKERTON: And if the patent addresses  
5 that need, it must be a need for --

6 MR. HARRIS: Oh, come on now.

7 MR. PINKERTON: -- a printing process.

8 MR. HARRIS: Do you want to testify again?

9 MR. PINKERTON: No, I just --

10 Q. (By Mr. Harris) Okay. Now, before going into  
11 the -- well, you are looking at it, aren't you, sir, I'm  
12 sorry. Are you still reading?

13 A. No, I was waiting on you.

14 Q. Don't wait on me. I'm not coming back this way.  
15 Never mind.

16 I wanted to know if you didn't agree that  
17 the balance down to summary of the invention, perhaps  
18 with the exception stated by your counsel, is talking  
19 about the things related to the prior MIPP system?

20 A. I -- yes.

21 Q. Your counsel probably doesn't want you to guess,  
22 but then maybe he does, I don't know. You read this  
23 thing when you filed it, didn't you?

24 A. Yes, sir.

25 Q. And you must have believed something about it.

1 So pardon the argument on that one little point, but if  
2 you don't understand it, tell me. It is about MIPP,  
3 isn't it?

4 A. Yes, it is.

5 Q. All right. Now, going to summary of the  
6 invention. Before -- you read it if you like, but what I  
7 would like to know is what do you think, not as a lawyer,  
8 but what do you think the invention is?

9 MR. PINKERTON: I want to object to the  
10 form of the question. He's asking you not as a lawyer.  
11 The question is vague and ambiguous in regard to what he  
12 thinks the invention is.

13 MR. HARRIS: No, it didn't.

14 Q. (By Mr. Harris) Anyway, you can answer.

15 A. What was the question?

16 Q. The question is: Not speaking as a lawyer, but  
17 speaking as a layman who is an inventor here in this  
18 patent, what do you think the invention is?

19 A. The invention is integrating metallic with  
20 process inks and being able to do the prepress work, the  
21 plating and the printing as well as the inks, developing  
22 inks that work. We also developed inks that would work  
23 with the process.

24 Q. Can you find, after you get to summary of the  
25 invention, a place in here where it refers to the

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1 printing step? You're through with all of the preprint  
2 things, and does it --

3 A. First sentence.

4 Q. Does it describe someplace the --

5 A. The first sentence. The present invention  
6 relates to the Williamson Integrated Metallic System  
7 developed to allow six-color printing using yellow,  
8 magenta, cyan, black, metallic silver and/or metallic  
9 gold.

10 Q. Okay. And what else after the preprint is it?

11 A. The next sentence, again, is: Printing the WIMS  
12 system creates a realistic metallic gold or metallic  
13 silver effect using the subtractive primary colors,  
14 black, silver and gold. That refers to printing.

15 Q. It doesn't say printing, does it?

16 A. Yes, sir.

17 Q. I don't see it, but okay. If you say so. You  
18 see it, well, then --

19 A. Yeah, how do you create it? I mean, you create  
20 with printing.

21 Q. I don't know. It says it here, does it not,  
22 that the WIMS system comprises a number of steps?

23 A. Yes.

24 Q. And then it basically tells in a summary form,  
25 or seeks to in a summary form, what the steps are,

1 doesn't it?

2 A. Yes, sir.

3 Q. And what are those steps?

4 A. Scan, edit, proof, print.

5 Q. How do you print and where does it tell you how  
6 you print?

7 A. That was your question? You asked me what the  
8 steps were.

9 Q. Yeah, that's fine. I appreciate your answer,  
10 but what I want to know is: Does it tell you in that  
11 paragraph about printing and about how to print?

12 A. Yes, the first part of the paragraph.

13 Q. Well, does it tell you after those steps are  
14 completed?

15 A. In the next paragraph.

16 Q. It tells what the WIMS method comprises. It  
17 says a number of steps and where is the printing step  
18 after the sentence that says the WIMS method comprises a  
19 number of steps?

20 A. Well, the way I would read it is that the  
21 sentence additional modification to dot size and these  
22 isolated areas may be required to void morray and  
23 reproduction and metallic brilliance of the final colors.  
24 I would say that refers to printing. Morray is something  
25 that happens to press.

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1 Q. I see. I don't know anything about --

2 A. Then it says in the next sentence, these colors  
3 can be printed, again, mentioning printing at the angles  
4 we print the color at.

5 Q. So how is it done, then, the printing? Is there  
6 a special way of printing in accordance with the WIMS  
7 process after you have done all of these other things?

8 A. Yes, sir.

9 Q. What is that special way?

10 A. Well, we always put the metallics down first.

11 Q. Does it say that in here?

12 A. I believe it does.

13 Q. I just wondered.

14 A. It may, and I'm looking at figure two now.

15 MR. PINKERTON: Figure one and figure two?

16 Q. (By Mr. Harris) Other than that, is there any  
17 special way of printing?

18 MR. PINKERTON: Object to the form of the  
19 question. You want to go through the whole patent and  
20 see what it says about it?

21 MR. HARRIS: I'm asking him about the  
22 process as he understand the invention to be.

23 MR. PINKERTON: Well, I'm objecting to the  
24 form of the question. It's so vague and so general and  
25 so indefinite that it's an impossible question to answer

1 without going through the whole patent, taking the whole  
2 patent as a whole and everything that the patent teaches.

3 Q. (By Mr. Harris) The process doesn't teach  
4 anything about flexographic printing, does it, the WIMS  
5 process?

6 MR. PINKERTON: Object to the form of the  
7 question.

8 THE WITNESS: I would have to look and see  
9 because I assume that we're covering all different types  
10 of printing.

11 Q. (By Mr. Harris) Well, why don't you look and  
12 see?

13 A. Can I ask counsel to do that for me.

14 MR. PINKERTON: He is asking you.

15 THE WITNESS: The reference of printing  
16 does not specify a certain process. I mean, printing as  
17 letter press printing, silk screen printing, gravier  
18 printing, flexo printing, waterless printing.

19 Q. (By Mr. Harris) Did you practice the WIMS  
20 process before this application was written?

21 A. We probably did some testing.

22 Q. And did you practice it after?

23 A. After this was written?

24 Q. Uh-huh.

25 A. Yes.

FOOTNOTES

1 Q. When was that?

2 MR. PINKERTON: Do you understand the  
3 question?

4 THE WITNESS: When did we practice it?

5 Q. (By Mr. Harris) Yeah.

6 A. I mean, we would practice it -- not on a daily  
7 basis, but --

8 Q. Well, I'm not trying to tick you off a day at a  
9 time, I'm trying to get an idea.

10 A. We used this process a lot.

11 Q. This specific process, the one in the patent; is  
12 that right?

13 A. Yes, sir.

14 Q. And in practicing the one in the patent did you  
15 use flexography in practicing?

16 MR. PINKERTON: Object to the form of the  
17 question.

18 THE WITNESS: What was the question again?

19 MR. HARRIS: Would you read the question  
20 back?

21 (Read back requested text)

22 MR. PINKERTON: Object to the form of the  
23 question. Counsel, I would ask that we take a break.

24 MR. HARRIS: Sure.

25 VIDEOGRAPHER: Off the video record at

1 10:26 a.m.

2 (Recess taken)

3 VIDEOGRAPHER: On the video record,

4 10:45 a.m.

5 MR. PINKERTON: Bill, we want to go and  
6 correct one date, which Jesse previously testified about,  
7 and that is when he was in Germany. So I'd like -- he  
8 had said he thought it was in April or before his -- what  
9 did you call it, your --

10 THE WITNESS: Busy season.

11 MR. PINKERTON: Busy season. When did you  
12 go to Germany, make your trip to Germany, when you went  
13 to MAN-Roland?

14 THE WITNESS: It was the end of May, and  
15 actually I think it was the day after -- it was the  
16 day -- we left for Germany the day we filed the WIMS  
17 patent because -- I remember that because we didn't want  
18 to discuss that with MAN without the patent being filed.

19 Q. (By Mr. Harris) What is it you didn't want to  
20 discuss with MAN?

21 A. I wanted to discuss -- that was the reason that  
22 Wolstenholmes asked us to come over to show them our WIMS  
23 process where they would run it on their test presses at  
24 graphic art shows in Europe and the United States.

25 Q. And is it your testimony you told them that what

1 you really wanted to do was to put a flexo unit upstream  
2 and have it followed by overprinting via offset  
3 lithography?

4 A. No, I mean that was the reason I went, is what  
5 you're saying?

6 Q. No, did you tell them that?

7 A. Oh, yeah, when we were there, yes, sir.

8 Q. Yes.

9 A. Yes, sir.

10 Q. Well, let me ask you this: When did you first  
11 do that?

12 A. Do what?

13 Q. Do what you just said you told them. Did you  
14 ever do it?

15 A. Did I ever do what?

16 Q. Did you ever put a flexo unit up front inline  
17 followed by litho units and single pass, go through,  
18 print the flexo and then over print with litho? Did you  
19 ever do it?

20 A. Have I ever done it?

21 Q. Yeah.

22 A. I have done that.

23 Q. Yeah. When?

24 MR. PINKERTON: Do you understand the  
25 question? He's asking you when you first practiced.

1 THE WITNESS: When I first practiced the  
2 process?

3 Q. (By Mr. Harris) The process I just described.

4 A. In '90 --

5 MR. PINKERTON: I object to the form of the  
6 question in regard to his process he just described,  
7 but --

8 THE WITNESS: The inline process?

9 MR. PINKERTON: Yeah.

10 THE WITNESS: God, it's got to be late --  
11 it's got to be around September of '95.

12 Q. (By Mr. Harris) Would you accept December  
13 of '95?

14 A. Not from my recollection. I think it was  
15 September.

16 Q. Well, let's talk in terms of something other  
17 than precise dates and ask you if it was done with some  
18 PRI people present, too, at the time you practiced.

19 A. The inline process?

20 Q. Yes.

21 A. Yes, sir.

22 Q. And that was the first time, wasn't it, that it  
23 was actually practiced?

24 A. Inline, yes, sir.

25 Q. And by inline you're distinguishing from

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1 two-pass, aren't you?

2 A. Yes, sir.

3 Q. And what do you mean by two-pass?

4 MR. PINKERTON: Object to the form. I  
5 think he's asking in regard to printing with metallics.  
6 Is that -- that's what's relevant.

7 MR. HARRIS: I really thought we had a line  
8 of -- get too technical, we'll never get through.

9 MR. PINKERTON: Yeah, I think this one  
10 might have gone too far the other way, I'm just  
11 suggesting.

12 MR. HARRIS: Okay.

13 MR. PINKERTON: Two-pass could be Troy  
14 Aikman throwing --

15 THE WITNESS: What was the question?

16 Q. (By Mr. Harris) The question in context made  
17 perfectly good sense until counsel sort of torpedoed it.

18 MR. PINKERTON: Well, I think he was  
19 struggling with the question and --

20 Q. (By Mr. Harris) No, inline was what you said,  
21 okay, as a question and we said yes, inline.

22 A. The WIMS process?

23 Q. I don't know what the WIMS process has to do  
24 with my question? My question went back to -- the WIMS  
25 process doesn't talk about flexography specifically, does

1 it, in the WIMS patent?

2 A. Do I need to give this back, because I thought  
3 we were talking about the --

4 Q. Yeah, the WIMS patent. I'll say that's the WIMS  
5 patent, the 976. It doesn't specifically talk about  
6 flexography, does it?

7 A. No, it says printing.

8 Q. What?

9 A. Says printing.

10 Q. Just printing?

11 A. Yes.

12 Q. And so when you talk about the WIMS process, let  
13 me ask you this: Do -- kill that, I want to do it  
14 different.

15 Well, I guess what I would really like to  
16 know is since it was the end of the year in '95 that the  
17 process was first actually practiced inline, you  
18 understand that, don't you? Do you understand that?

19 A. Yes.

20 Q. Okay. Since it was then toward the end of the  
21 year and since it was May in '92 when you had an idea,  
22 would you agree with me that essentially three and a half  
23 years had passed from the time that you say you had the  
24 idea at the time that the process was first practiced?

25 A. Two -- yeah, it was in September, so it would

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1 have been, June, July, August, two years and three  
2 months.

3 Q. You and I don't seem to be on the same  
4 mathematical table.

5 MR. PINKERTON: Fuzzy.

6 Q. (By Mr. Harris) Try again.

7 A. We did the inline in September of, I believe,  
8 '95, and so that means that that would be two years and  
9 three months from my inception.

10 Q. Let's do it this way. From '93, May -- from '92  
11 May to '93 May is one year, isn't it?

12 A. '92 to '93 is one year.

13 Q. And '93 to '94 is two years, isn't it?

14 A. Yes, sir.

15 Q. And '94 to '95 is three years, isn't it?

16 A. Oh, okay. Excuse me.

17 Q. Use the Aggie method here, now. No, I don't  
18 mean that.

19 A. I apologize. It's three years.

20 Q. And it's over three years, isn't it?

21 A. Yes, sir.

22 Q. And I -- according to my clock it was done in  
23 December. I know you say September, but we won't piddle  
24 around with that detail. It was over three years, you  
25 agree with that?

1 A. For the final inline process, yes, sir.

2 Q. Yeah. What did you do in '92 about filing a  
3 patent application on the idea that you say that you came  
4 up with in '92 and that you discussed with MAN-Roland?

5 A. We did not do anything in '92 with it.

6 Q. What did you do in '93 about filing a patent  
7 application on same?

8 A. Well, you know we didn't file a patent until  
9 early '90 -- when did we file the patent -- '95.

10 Q. Sir, it was August of '95, okay. So let's back  
11 up. It's okay to answer my questions and let me go a  
12 step at a time. In '93 you did not file a patent  
13 application on it, did you?

14 A. No.

15 Q. And you didn't in '94, did you?

16 A. No.

17 Q. And you finally filed one in '95, didn't you?

18 A. Yes.

19 Q. And that was during the period of time that you  
20 had been working with or with some assistance from PRI in  
21 one way or another, true?

22 A. What years?

23 Q. '95?

24 MR. PINKERTON: I object to the form of the  
25 question.

1 THE WITNESS: Yes.

2 Q. (By Mr. Harris) Had you already filed the 976  
3 application at the time you made the disclosure to  
4 MAN-Roland?

5 A. Yes, sir.

6 Q. When did you actually have the idea? I  
7 understand you made the disclosure in May, according to  
8 your counsel's statement?

9 A. Also in May, I believe it was in May -- yeah, I  
10 know it was May. It was the end of May when I was in  
11 Germany and I saw for the first time in my whole life a  
12 flexo unit.

13 Q. That's the first time you saw a flexo unit?

14 A. Uh-huh.

15 Q. Mr. Davis, do you know if he was an expert in  
16 flexography?

17 MR. PINKERTON: Object to the form of the  
18 question.

19 THE WITNESS: Do I -- excuse me.

20 Q. (By Mr. Harris) What did he know about flexo,  
21 as far as you know?

22 A. More than I did.

23 Q. Did he say he had seen flexo done before?

24 A. I can't remember the conversation.

25 Q. You don't know. Oh, by the way, talking about

1 Mr. Davis, I wasn't too thorough a minute ago when I  
2 spoke with you about sketches, drawings, or whatnot,  
3 documentation of your 1992 disclosure. Did you  
4 personally make any drawings, sketches, or any  
5 documentation at that time?

6 A. Yes.

7 Q. And you have lost that or can't find that; is  
8 that true?

9 A. Can't find it.

10 Q. And did Mr. Davis personally make any drawings,  
11 blueprints, sketches, documentation of any kind  
12 concerning --

13 A. Yes, sir.

14 Q. Well, let me finish. I'm going a little slow,  
15 sorry. Concerning the '92 MAN-Roland situation, that is  
16 your idea?

17 A. Yes.

18 Q. And where are those?

19 A. Can't find them.

20 Q. Now then, after that trip, after you got back to  
21 Dallas, at any time did you make any drawings, sketches,  
22 or any kind of documentation concerning your idea?

23 A. The drawings and sketches that Bill Davis and  
24 myself did were after my trip, after returning from  
25 Germany.

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1 MR. PINKERTON: Here in Dallas?

2 Q. (By Mr. Harris) And where are they, sir?

3 A. Those are the ones I said while ago we cannot  
4 find.

5 Q. That includes Mr. Davis and you?

6 A. Yes, sir.

7 Q. And is there any third party with the company  
8 that has any drawings or sketches or documentation of any  
9 kind about the idea?

10 A. I know of none.

11 Q. What kind of documentation, sketches, did you  
12 have to give the patent attorney? I don't want you to  
13 tell me about your discussions with him or anything else,  
14 but the patent attorney for the 363 patent, the one that  
15 you filed in August of 1995?

16 A. I did not give the patent attorney personally  
17 any drawings or sketches.

18 Q. Do you know if anyone did from your company?

19 A. For a fact, no if's and's or but's?

20 Q. Yes.

21 A. I wasn't there, so --

22 Q. Now, with if's and's or but's, do you know  
23 anybody?

24 A. No.

25 Q. Do you know who dealt with the patent attorney,

1 was it Mr. Davis?

2 A. We both did on and off.

3 Q. Do you remember whether you had drawings to work  
4 from?

5 A. I don't remember.

6 Q. Do you remember if you had any PRI brochures?

7 A. At this time?

8 Q. Yes.

9 A. No, I don't -- I didn't and I don't remember  
10 any.

11 Q. Now, the coater that you envisioned in '92.

12 A. Yes, sir.

13 Q. What was it like, describe it?

14 A. Well, there was several options that we were  
15 looking at. One would be having a bolt-on device and  
16 also Bill and I talked about dropping one from a railing  
17 or having one on a --

18 Q. Or having one, what?

19 A. I'm trying to remember the term, just a second.

20 Q. Retractable?

21 A. Yeah, retractable, rack back retractable. No,  
22 we felt it was necessary to be retractable. We had to  
23 get into the unit, and I'm not an engineer, either, but I  
24 am around a lot of printing equipment and I also had the  
25 idea of -- my concept came from a multi lith where we do

1 bolt down a unit, was one of my ideas.

2 Q. Why didn't you guys go ahead and do something  
3 much earlier? That's a why question, leaves it wide open  
4 for you.

5 MR. PINKERTON: Object to the form. Calls  
6 for a narrative.

7 MR. HARRIS: Narratives are legal.

8 THE WITNESS: Our company does a lot of due  
9 diligence when we make decisions and a lot of people  
10 think we move too slow and do take a long time. I was in  
11 the process of trying to get our WIMS process going with  
12 Harry and then --

13 Q. (By Mr. Harris) The what process, sir?

14 A. Our WIMS process, which drove me to Germany  
15 originally because Harry wanted me to try to sell MAN on  
16 running our process on their presses at graphic art shows  
17 across the world.

18 So during that time the first -- and Harry  
19 and I discussed this when I was in Germany, the flexo,  
20 after I saw that, and Harry says, well I'm -- we make the  
21 flexo, too, and he said I actually have a guy that works  
22 for me that has a degree in flexography.

23 And so we got to know both of them very  
24 well, discussing that over this next six or eight months  
25 while we were preparing for Ipex where MAN agreed to run

1 Harry's metallics and our WIMS process for Harry. And so  
2 that was in, I think, September of '93 is when Ipex, so  
3 between that period we were working on -- we hired a  
4 photographer to shoot photo -- you know, Harry wanted to  
5 use western scenes because we were from Texas.

6 So all of this process was happening during  
7 that time and we were still investigating the metallics  
8 and what the brilliance were, what the grayness was, how  
9 we felt that it could fit within the WIMS process because  
10 of the way we integrate the film -- I mean integrate the  
11 inks.

12 We had -- everything that we had done and  
13 up to this date was all on the -- you know, it was on  
14 offset press, the whole thing. We had no exposure to  
15 flexo until I went to Germany personally, and so in '93  
16 we started, like I say, we went to Ipex. We began  
17 investigating to buy new equipment for our company.

18 We did not want to go to the expense of  
19 building a piece of equipment or having one made for us  
20 on equipment that was going to be taken out of service.  
21 We were making a huge investment for our company.

22 Q. Are you talking about '93?

23 A. This began in '93 and then -- and you asked me  
24 through '94, didn't you? I can't remember, I thought  
25 through '95 or '94, I don't remember. I'm just going



1 through it.

2 So in '93 we were looking at presses and  
3 making decisions. We came off a good -- our year looked  
4 real good. We looked very profitable. Business was  
5 growing, and again we were looking at new equipment.

6 So we didn't know what press we would have  
7 in there, and there was significant difference between  
8 the Kamori presses, the OMCSA presses, the MAN presses,  
9 the Heidelberg presses. So we didn't know which press we  
10 were going to buy.

11 It would not have made sense for us to  
12 invest in equipment that wouldn't be -- that couldn't be  
13 used on the other presses.

14 Q. Could you have invested in a patent application?

15 A. Sir?

16 Q. Could you have invested in a patent application?

17 MR. PINKERTON: Object to the form.

18 THE WITNESS: Probably could have -- I  
19 mean, yeah, we could have invested, if that was the  
20 question.

21 Q. (By Mr. Harris) Did you have a definite enough  
22 idea what you wanted to do in order to invest?

23 A. I don't know why we didn't invest in a patent at  
24 that time.

25 Q. Don't know why?

1 A. Don't know why.

2 Q. Okay. I'm sorry. I interrupted.

3 MR. PINKERTON: He said he didn't know why  
4 we invested -- he said -- I'm not sure that you  
5 characterized his answer correctly. Would you read it  
6 back?

7 (Read back requested text)

8 MR. PINKERTON: Invest in -- I thought you  
9 said in a patent at that time.

10 THE WITNESS: Right, that's what I said.

11 MR. HARRIS: That's what I thought was  
12 said, too.

13 MR. PINKERTON: That is the way I  
14 understood it, wanted to make sure that was correct.

15 THE WITNESS: That was '93.

16 Q. (By Mr. Harris) That was '93. Okay. Then '94?

17 A. The whole year?

18 Q. Yeah.

19 A. Okay.

20 Q. If you want to leave off New Year's Day and  
21 Fourth of July, it's okay with me.

22 A. Okay. '94 we started -- some time in '94 we  
23 started discussing the patent again and -- because we  
24 knew we were going to be buying equipment. And --

25 Q. Who did you discuss it with?

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1 MR. PINKERTON: Object.

2 THE WITNESS: Bill and I were discussing it  
3 and some time in '94 we started talking to our counsel.  
4 I don't remember when that was.

5 Q. (By Mr. Harris) Was it Mr. Pinkerton initially  
6 or was it someone else at Jones, Day?

7 A. I don't remember if it was Jones, Day or not. I  
8 can't remember that. John was involved in it and there  
9 was another gentleman.

10 MR. PINKERTON: Do you want me to help him?

11 MR. HARRIS: I don't care.

12 THE WITNESS: Al Hall.

13 MR. PINKERTON: That's 100 percent right.

14 THE WITNESS: Al Hall, and --

15 MR. PINKERTON: That fact is not in dispute  
16 in this case.

17 MR. HARRIS: You didn't write the  
18 application?

19 MR. PINKERTON: That's right. Al did.

20 THE WITNESS: So in '94 I think it was --  
21 we had one of our best annual report, what we call  
22 seasons. So the -- we approved purchase of new  
23 equipment. So we started testing -- we started getting  
24 pricing in probably April of '94. We had narrowed it  
25 down to three manufacturers. We were not sure of the --

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They had chosen Komori -- I mean, they had chosen Heidelberg and Jerry and I were very comfortable with Komori printing equipment. So we decided to start testing equipment from the manufacturers, and I believe that was in -- the first round of tests were probably in May.

Q. (By Mr. Harris) You are speaking of presses now, aren't you?

A. Press units.

Q. Press units as such?

A. As such.

Q. Komori versus Heidelberg?

A. Yes, sir.

Q. Okay. Go ahead.

MR. PINKERTON: Again, when you say go ahead. It's kind of vague as to what you're asking him. It's a general question. I --

MR. HARRIS: Well, it's the same question. I was trying to find out why it was that he didn't file an application earlier.

THE WITNESS: Okay.

MR. HARRIS: And he knows that's true, and the way he's explaining what they were doing that kept

1 him from filing an application.

2 MR. PINKERTON: Well, he's --

3 MR. HARRIS: That's what I understand it to  
4 be.

5 Q. (By Mr. Harris) Isn't that what you understand  
6 that you're answering?

7 MR. PINKERTON: I want to just object to  
8 what he understands he is answering. Just let's have a  
9 question and an answer. That's all I'm asking for, so we  
10 know what we're talking about.

11 Q. (By Mr. Harris) Well, what did you do in '94 --

12 MR. PINKERTON: He's up to --

13 Q. (By Mr. Harris) -- that kept you from going  
14 forward with your invention?

15 A. Nothing kept us in '94. The pieces became -- we  
16 were working on which equipment we were going to buy and  
17 as soon as the equipment decisions were made, then we  
18 would file -- we would pursue our patent and the process.

19 Q. And what date was that?

20 A. In May we started testing the equipment. In  
21 June of '94 we gave an oral commitment to Heidelberg, but  
22 we didn't want the other manufacturers to know it until  
23 Jerry and I had time to meet the company that -- this was  
24 a significant order of equipment for us.

25 Q. What month is that, now?

1 A. This was May.

2 Q. Okay.

3 A. No, this was the first of June.

4 Q. First of June?

5 A. And then Bill and I started looking at OEM  
6 equipment, dryers. One of the presses was going to have  
7 UV equipment on it. Bill had been having discussions  
8 with John Bird at Printing Research about their OEM  
9 equipment.

10 We met Steve Baker in Atlanta in June. He  
11 took us to a couple of facilities to show us their drying  
12 equipment, and actually that is where I had dinner with  
13 Steve Baker and told him about our patent ideas and our  
14 conception and what we wanted to do.

15 We came back to Dallas and we -- in July my  
16 brother and I and Bill Davis traveled to Germany and met  
17 with Heidelberg and met the upper echelon of the  
18 corporation because again we were -- we were going to  
19 commit our future to their equipment, and we felt it  
20 was -- we wanted a one-on-one with them.

21 And then we placed an order for the  
22 equipment, the first press -- first of five presses.  
23 There is a big printing show in May or June of '95 and  
24 it's called DRUPA and it's every -- normally every four  
25 years. This year it was -- they had it on a five-year

1 basis.

2 MAN -- or Heidelberg was coming out with  
3 some new designs on the equipment. One was a triple  
4 tower press that used two flexo units at the end of the  
5 press and a drying station. We placed an order for a  
6 seven-color and a six-color that were pre DRUPA presses,  
7 and then I believe the triple tower and the two  
8 eight-colors were going to be the DRUPA models.

9 And so we had a press coming in every five  
10 or six weeks, I believe. The first press came out, I  
11 think it was a seven-color and it came in in September  
12 and then I think the next press was either in November or  
13 December. The next press was January or February. It  
14 would have had to have been up and running in January or  
15 the end of February.

16 Oh, during these conversations Heidelberg  
17 would not -- part of my month of August was to convince  
18 Heidelberg to use PRI's equipment. They were emphatic  
19 not to use any of PRI's OEM on their equipment.

20 Q. What year are you in?

21 A. This is '94. And John Bird and Steve Garner and  
22 Howard came over and we discussed it. They gave us  
23 incentives that, you know, made it worth my while to get  
24 with Heidelberg and convince them that Printing Research  
25 had equipment that we felt would work.

1 And I actually had to go -- actually had to  
2 go all of the way to the president of Heidelberg USA to  
3 discuss this because they were adamant about not using  
4 PRI. So I went through that process in August and the  
5 press came in, they let us put a dryer on it.

6 Heidelberg would not let us put any -- I  
7 think they wouldn't let -- Printing Research had an  
8 interstation hot air knives and Heidelberg would not let  
9 us put it on the press until they got it put up and get  
10 it in operation because of warranty issues.

11 We, again, I went back to Heidelberg and  
12 said we wanted to do it, and again at this junction I had  
13 to get into another discussion with Heidelberg because  
14 PRI did a lot of damage to the press on their  
15 installations. They had some screws and other items come  
16 through the press and damage cylinders and so then  
17 Heidelberg said, guys, we're not going to -- we don't  
18 want their equipment on our presses. And I said this  
19 could happen to anyone. So, you know, I had further  
20 discussions with them.

21 And Steve and -- Steve Garner and Mr. Bird  
22 and Howard at that time appreciated the extra effort we  
23 were trying to get that equipment on. So that took us up  
24 to, like I said, the first DRUPA press was a triple tower  
25 with an anilox system on it.



1 Heidelberg would not offer a press with  
2 anilox on it at that time, at the end of press. And one  
3 reason we had been talking to Printing Research about  
4 alternate coaters was to put one on the tower. So that's  
5 where the conversation began.

6 Q. That's where what?

7 A. That's where our original conversation began.

8 Q. Your original --

9 A. When I told --

10 Q. Your original conversation with who?

11 A. When I had my conversation in Atlanta with Steve  
12 Baker and Bill Davis and I had our meeting in Atlanta  
13 with Steve Baker. And then in '95 --

14 Q. You hadn't filed an application in '94, though,  
15 right, patent application?

16 A. No. When was the patent filed?

17 Q. I don't know. I think it was August of 1995. I  
18 can be corrected, if somebody wants to correct me.

19 MR. PINKERTON: Well, you've already stated  
20 it once on the record today, so --

21 MR. HARRIS: Must be right, then, right?

22 MR. PINKERTON: August of '95 would be  
23 pretty close.

24 THE WITNESS: A lot of things were going on  
25 at that time, so --

1 Q. (By Mr. Harris) When did you go see the lawyer  
2 to get him to prepare an application or did someone in  
3 your behalf go, you or someone in your behalf go to the  
4 lawyer to prepare an application? Do you know when?

5 A. No, I really don't. I would have to guess. I  
6 know it takes several months.

7 Q. What?

8 A. I know the process takes several months, so I  
9 don't know when.

10 Q. Kind of depends on the lawyer.

11 Do you keep a calendar?

12 A. My secretary normally does. It's on a computer.

13 Q. Have you checked with your secretary to see if  
14 she has some kind of a calendar or record covering the  
15 period from '62 (sic.) on or any part thereof?

16 A. She doesn't have a calendar, but I found my  
17 expense reports in accounting that implicated the trip.

18 Q. Well, let's don't focus on the trip. What did  
19 they tell you about going to see the patent lawyer, for  
20 example?

21 A. Oh, okay.

22 Q. What did they tell you about --

23 A. She would not have probably done that, then.

24 Q. What did it tell you about when you met with  
25 various people over a period of time? There are a lot of

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1 allegations or statements in this case, most of them  
2 actually at the patent office through various  
3 declarations about people meeting and going places and  
4 saying things, but it's all pretty much based on oral,  
5 and so, you know, I'm trying to find all of the records I  
6 can to figure out what really happened.

7 And I know everybody is trying to figure  
8 out what really happened, and there is sometimes  
9 controversy about that sort of thing.

10 A. I do not keep a daytimer. It is -- she changes  
11 it out on a computer form for me on a daily basis and  
12 gives me a deal, and I know we don't have -- wait a  
13 minute, I better say I don't know.

14 Q. Have you talked to her about the kind of records  
15 she does have --

16 A. Yes.

17 Q. -- about your calendar over a period of time?

18 A. Yes.

19 Q. What has she told you?

20 A. She doesn't keep the calendars for me.

21 MR. PINKERTON: Doesn't retain them, is  
22 what you're saying?

23 THE WITNESS: Doesn't retain them.

24 MR. HARRIS: Keep could mean that.

25 MR. PINKERTON: Keeps a schedule, but

1 doesn't retain them as they go.

2 Q. (By Mr. Harris) Does she erase the computer,  
3 what's on the computer?

4 A. I have no idea how she operates or how the  
5 computer system works. We have probably had two or three  
6 different computer systems in there since 1994 or '95.

7 MR. PINKERTON: And probably had at least  
8 that many secretaries in there; is that right,  
9 Mr. Williamson? I mean, we're not talking about the same  
10 secretary, Bill, that has been there for a long time.

11 Q. (By Mr. Harris) Now, you had presses in 1992,  
12 didn't you?

13 A. Yes, sir.

14 Q. Were they multi station presses or did you just  
15 have one hand press to work with?

16 A. We had both.

17 Q. You obviously had multi station presses,  
18 correct?

19 A. We had both. We even have an old --

20 Q. Good. Mr. Guttenberg probably runs it for you.

21 A. Yes, sir.

22 Q. What did you have in the way of presses in '92?

23 A. We had two webs, six unit webs. I can't  
24 remember if the third web came in in '92 or not. We had  
25 a -- God, that's hard to remember. We had a two-color

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1 Harris -- we had a two-color OMCSA, 40-inch press, we had  
2 a four-color Miller perfecter, I believe. We had two  
3 40-inch six-color Komoris. We had one -- God, I can't  
4 remember if it's a -- we had a one six-color OMCSA and I  
5 think a 32-inch, I believe, it was a six-color.

6 Q. You have a lot of space, don't you, to put up so  
7 many presses? I mean seriously, you do have, don't you,  
8 a great deal of space?

9 A. Yes.

10 Q. How much floor space do you have in your  
11 facility?

12 A. Somewhere around 200,000, I'm not for sure.

13 MR. PINKERTON: Could we get a spelling of  
14 OMCSA for the record? Do you know how to spell it?

15 THE WITNESS: I think it's O-M-S-C-A. Is  
16 that correct, Bill?

17 MR. DAVIS: O-M-C-S-A.

18 MR. PINKERTON: O-M-C-S-A.

19 MR. HARRIS: Irish, no doubt.

20 Q. (By Mr. Harris) The six -- well, let me ask you  
21 another question, since we're on the size of your  
22 facility. Are you the largest printer in Dallas?

23 A. No.

24 Q. Who is? Are you number two? Are you Hertz or  
25 are you Avis?

1 MR. PINKERTON: I object to the form in  
2 terms of --

3 THE WITNESS: I don't know. I mean,  
4 there's --

5 MR. PINKERTON: Let me object. I want to  
6 object to the form as being vague and indefinite. Large  
7 in terms of physical size or dollar volume or what?

8 Q. (By Mr. Harris) I think volume is what I'm  
9 talking about, and I know you don't know down to a T what  
10 that is, but --

11 MR. PINKERTON: He might not know at all  
12 what other folks volume is.

13 THE WITNESS: Well, you have the Dallas  
14 Morning news and you've got Taylor Publishing Company and  
15 you've got Quebecor is the world's largest.

16 Q. (By Mr. Harris) Who?

17 A. Quebecor who is the largest printer in the  
18 world.

19 Q. They're here in Dallas?

20 A. Yes, sir.

21 Q. So where are you?

22 A. Compared to them I'm way down the pack.

23 Q. Dallas Morning News prints for -- I'm sorry,  
24 contracts and prints for everyone over the country,  
25 right?

1 A. I don't know what they do. They --

2 Q. No, they just print a newspaper, don't they?

3 A. I don't know. I mean, they list printers in the  
4 Dallas-Fort Worth Business Journal and they list  
5 Quebecor, they list the Dallas Morning News, they list  
6 Taylor Publishing Company. I think we are fourth or  
7 fifth.

8 Q. Yeah, but you don't know what Dallas Morning  
9 News prints?

10 A. No, I don't know if they print just newspapers  
11 or they print inserts or magazine inserts or circulars, I  
12 really don't know.

13 Q. Now, the largest in the world that you testified  
14 about, do you know what they print?

15 A. Here in Dallas, I don't know what they print.

16 Q. By here in Dallas, do they have multi locations  
17 that print?

18 A. Yes, sir.

19 Q. Were you taking into consideration those multi  
20 locations when we talked about size in Dallas?

21 A. I don't know. I'm -- like I say, I'm referring  
22 to the Dallas-Fort Worth Business Journal.

23 Q. Well, let me hit it another way. How many  
24 employees do you have?

25 A. 450.

1 Q. How many?

2 A. 450.

3 Q. 450. Well, I thought my client was a pretty  
4 good size. How many people do you think PRI has?

5 MR. PINKERTON: Objection.

6 Q. (By Mr. Harris) And I realize that's an  
7 approximation, if you can make it?

8 MR. PINKERTON: Object to form.

9 THE WITNESS: I really have no idea.

10 Q. (By Mr. Harris) It wouldn't surprise you to  
11 find out they had less than 100, would it?

12 A. No.

13 Q. What do you understand to be the business that  
14 they're in?

15 A. Super Blue.

16 Q. Certainly that is the principal product that you  
17 mentioned, but do they print?

18 A. No, sir.

19 Q. In a generic sense, what do they do?

20 A. I don't really know right now. It was my  
21 understanding they got out of equipment sales. They used  
22 to sell equipment, but I don't deal with them, so I don't  
23 know. I do know of the Super Blue.

24 Q. How did you gain the understanding about them  
25 getting out of the business except for Super Blue?

FOOTNOTES



1 A. I don't remember. Somebody told me.

2 Q. Okay. I certainly will take that answer. I'll  
3 bet you can't remember who the somebody was?

4 A. No, I really can't.

5 Q. Getting back to the presses. You mentioned a  
6 couple of six color ones.

7 A. Which presses?

8 Q. In -- I asked about in '92?

9 A. Yes, sir.

10 Q. And you mentioned a couple of six-color presses,  
11 and what kind were they?

12 A. I think we had -- and I might be wrong, but I  
13 think we had a two-color OMCSA.

14 Q. I'm just asking about the six color ones?

15 A. Okay. We had a 32-inch or 30-inch, I can't  
16 remember the exact size, six-color Komori, and we had two  
17 40-inch Komoris. I believe we had a six-color OMCSA and  
18 we had a four-color Miller.

19 Q. I'm just after the six-color for the minute.

20 A. Okay.

21 Q. In hopes that I can avoid having to talk about  
22 the other. Is there any reason that what you believe  
23 your idea was that you described 1992 -- and by the way,  
24 that's the idea that finally was the basis of what went  
25 into your patent, wasn't it, your 363 patent?

1 A. Which is the 363 patent?

2 Q. I believe that's the one that's got your name on  
3 it.

4 MR. PINKERTON: Well, the WIMS patent does,  
5 too, the basic WIMS patent, so --

6 MR. HARRIS: Huh?

7 MR. PINKERTON: The patent in this lawsuit.

8 THE WITNESS: Oh, yes.

9 MR. HARRIS: Yeah. Thank you. Huh? Yes?

10 THE WITNESS: Yes.

11 Q. (By Mr. Harris) Is there any reason that you  
12 could not -- well, let me try it differently. You would  
13 agree with me that you could have used one of those  
14 presses that you described? For example, the six-color  
15 presses, to practice your idea?

16 A. Would it have been possible?

17 Q. Yes.

18 A. Yes. Would it have been reasonable, no.

19 Q. I just wanted to know that?

20 MR. PINKERTON: He finished his answer.  
21 Did you get that on the record?

22 THE COURT REPORTER: Yes.

23 Q. (By Mr. Harris) And in '93, 1993, it would have  
24 been possible to bring your idea to the point where you  
25 could actually practice it with the equipment you had?

1 A. Could have been possible but not realistic.

2 Q. Well, it wasn't realistic to you, isn't that  
3 what you mean, financially it wasn't?

4 A. Financially, it wasn't.

5 Q. You are just talking financially, aren't you?

6 A. Yes, sir.

7 Q. And in 1994 it could have been done, then? I  
8 realize you were about to buy new presses, but it could  
9 have been done with what you had, couldn't it?

10 A. Oh, yeah, we could have anybody make it, the  
11 units --

12 Q. I'm talking now about the presses that you were  
13 going to --

14 A. Right, but we -- that's what I'm saying, yeah,  
15 we could have used any press. I mean, we could have gone  
16 to anybody and made a flexo unit to put in there, that --  
17 yes, you're right.

18 Q. When you ordered from Heidelberg -- when you  
19 ordered from Heidelberg, why didn't you order at least  
20 one of your presses with a dedicated flexo unit in front,  
21 that is all the way upstream?

22 A. We didn't feel that it would have been  
23 economically feasible to do that because the press would  
24 have -- you would have had to drop the printing unit and  
25 we only run flexo small percentage of the time and you

1 would be losing a unit, so it would not be economically  
2 feasible.

3 Q. But it could be done, couldn't it?

4 A. Oh, could it be done.

5 Q. Sure.

6 A. Not at that time. They would not have done it  
7 at that time.

8 Q. Well, you're talking about Heidelberg, aren't  
9 you?

10 A. That's what you asked me about.

11 Q. But I'm talking about from a physical scientific  
12 mechanical point of view printing wise, too, it could be  
13 done, whoever did it?

14 A. Well, we -- in 1992 we felt it could be done  
15 then.

16 Q. It could be done with a dedicated front unit,  
17 right?

18 A. We think it could have been. I don't know if  
19 the manufacturer would have do it or not. We think we  
20 could do it.

21 Q. And do you believe your idea covers --

22 A. A dedicated.

23 Q. -- a dedicated front unit --

24 A. Yes, sir.

25 Q. -- flexo? Do you?

FOUO 910600

1 A. I believe it does.

2 MR. HARRIS: Why don't we take a break.  
3 I'm getting hoarse.

4 VIDEOGRAPHER: Off the video record at  
5 11:34 a.m.

6 (Recess taken)

7 VIDEOGRAPHER: On the video record,  
8 11:53 a.m. This is tape two.

9 Q. (By Mr. Harris) Mr. Williamson, did you search  
10 your records or have them searched, expense records, in  
11 order to find what was present throughout the summer of  
12 1994?

13 A. I didn't ask anyone to do that.

14 Q. What?

15 A. I did not ask anyone to do that.

16 Q. You did locate some expense records that showed  
17 an airplane ticket or so to Atlanta, back, and looked  
18 like that it showed a steakhouse bill?

19 A. Yes, sir.

20 Q. How did you find that if you didn't search?

21 A. Bill Davis is the one that found them.

22 Q. Okay.

23 A. He went to accounting and got them.

24 Q. Did Mr. Davis tell you he had looked in any more  
25 depth for expense records that related to that summer?

1           A.    Did he look at other expense reports for the  
2 whole summer?

3           Q.    Yeah.

4           A.    I don't know.

5           Q.    Or particularly as relates to Atlanta, but all  
6 of them, I think? You don't know?

7           A.    I don't know.

8           Q.    Okay.

9           MR. HARRIS: Counsel, I believe we made a  
10 request for expense records and have defined that talking  
11 with you before, and I think we even have it in writing,  
12 but I'll get off the subject now and look to you to see  
13 if you can stir something up for us, okay?

14           MR. PINKERTON: Well, we produced you the  
15 trip -- the receipts that we have. Do you want us to  
16 look for receipts, anything else in the summer with  
17 respect to Atlanta? Is that what you'd like for us to  
18 look at.

19           MR. HARRIS: Oh, I think I'd particularly  
20 like to look at Atlanta, but I'd like to kind of make  
21 some of my own judgments instead of relying on somebody  
22 else's judgments in the more narrow sense. In the broad  
23 sense, of course, they have to be able to recognize it's  
24 an expense record and they need to be able to recognize  
25 when, but I would like to have something.

1 MR. PINKERTON: Okay. We'll take it under  
2 advisement and respond appropriately.

3 MR. HARRIS: Okay. Maybe the best thing to  
4 do is just take a look at our interrogatory and document  
5 request.

6 MR. PINKERTON: Okay. I'll do that.

7 MR. SWEENEY: I would contest the idea that  
8 you produced the other expense report to us. If you  
9 recall, it was two pages of heavily redacted fragments of  
10 things, and I believe we even commented on the record at  
11 Bill Davis' deposition that it was not a complete  
12 document.

13 MR. PINKERTON: It wasn't redacted.

14 MR. SWEENEY: It was redacted. The prices  
15 were removed. I have a copy of it, if you'd like to look  
16 at it.

17 MR. PINKERTON: We gave you a copy of the  
18 full receipt.

19 MR. SWEENEY: No, you did not. That's not  
20 been produced to us.

21 MR. PINKERTON: We have that, and it was  
22 produced, to my knowledge. If it wasn't, we'll produce  
23 it right after lunch, okay?

24 MR. SWEENEY: All right. That would be  
25 fine.

1 MR. PINKERTON: And the amount was taken  
2 off of there. I thought the other receipt had been  
3 produced.

4 MR. SWEENEY: Unless it's gone to our  
5 office and I haven't seen it.

6 MR. PINKERTON: No, I don't think that's  
7 happened.

8 MR. SWEENEY: If you're talking about  
9 producing it at the deposition last time, then no, we  
10 never got a complete copy.

11 MR. PINKERTON: Bill, did we produce that.

12 MR. DAVIS: I gave you guys all the stuff I  
13 went through, sorted through.

14 MR. PINKERTON: Okay. I thought we had.  
15 We will -- if we've got something more, you'll have it  
16 after lunch.

17 MR. DAVIS: It covers, I think, May, June,  
18 July.

19 MR. SWEENEY: Thank you.

20 Q. (By Mr. Harris) Are you from Dallas originally?

21 A. I grew up in McKinney.

22 Q. When did you come to Dallas?

23 A. I came to Dallas to SMU in 1966 and have been  
24 here ever since.

25 Q. Did you graduate from SMU?



1 A. No, I got married my senior year and lacked a  
2 few hours.

3 Q. Two?

4 A. No, a few, I think 9 or 12. I was going to go  
5 to night school, but I never did finish.

6 Q. So you just about qualified for a degree, right?

7 A. Yes.

8 Q. What was it in? What was your major?

9 A. Business.

10 Q. Did you work any while you were going to  
11 college?

12 A. In the summers I had different jobs, mostly I  
13 worked at Williamson Printing or it was Dorsey Printing  
14 then. I can't remember when we changed the name. I  
15 actually worked there all my life, you know, odds and end  
16 jobs.

17 Q. So when you got out of school you worked full  
18 time for Williamson?

19 A. Yes, sir.

20 Q. Was that a family business?

21 A. Yes, sir.

22 Q. Owned by your father, perhaps?

23 A. Yes, sir.

24 Q. And you and your brother now own it?

25 A. We're the majority stockholders. I have some

1 sisters.

2 Q. Oh, I see. So it's still a family business, but  
3 you have some members of the family that are not  
4 particularly active in the business?

5 A. Yes, sir.

6 Q. We've talked about the 976 patent, which you  
7 call the WIMS patent, and of course we're litigating over  
8 the 363 patent, which you're likewise listed as a  
9 co-inventor on. Do you have any other patent?

10 A. Yes, sir.

11 Q. Would you tell me what?

12 A. There is one for Pak-Mag.

13 Q. For what?

14 A. Called Pak-Mag. It's a magazine insert or can  
15 be used for a direct mail piece. I can't remember if  
16 there was another one or not. I'm on three, I know. We  
17 had one for a puzzle, but I don't know if I'm on it or  
18 not.

19 Q. Have you commercialized your Pak-Mag in some  
20 way?

21 A. Oh, yes, sir.

22 Q. Through, what, your own use of it in the  
23 printing business or through the licensing?

24 A. Yes, sir.

25 Q. What, explain?

FOOTNOTES

1           A.    We haven't licensed anybody we have -- we have  
2           probably sold 100 million pieces with it.

3           Q.    A piece is something that's printed?  Is it a  
4           sheet that's printed?

5           A.    A finished product.

6           Q.    What do you mean by a piece?

7           A.    The finished product.

8           Q.    All right.  And the finished product in this  
9           case, is it a thing that's multi page or two page or any  
10          page or what?

11          A.    It's a carrier that allows you to apply another  
12          printed product into it that the post office would -- if  
13          you didn't use our product you would have a huge postal  
14          upcharge, so we have saved our customers five or six  
15          million dollars by using this process.

16          Q.    Do any others use the process?

17          A.    Not without infringing on our patent.

18          Q.    What?

19          A.    Not without infringing on our patent.

20          Q.    Do they?

21          A.    I only know of one person that did and they --  
22          they infringed on our patent.

23          Q.    Did they quit?

24          A.    Yes, they paid us damages and --

25          Q.    Did you actually go to court?

1 A. No, they settled in -- they settled it with us.

2 Q. Before a suit was filed?

3 A. No, we filed a suit and they -- we went through  
4 deposition and they settled immediately.

5 Q. Who was this or where are they located?

6 A. One of them is -- there was three people, I  
7 believe in the suit, World Color, Phillip Hachi, large  
8 magazine publisher and a company called The Forms House.

9 Q. Is that local?

10 A. No, they are -- all of them are out of state.

11 Q. Where?

12 A. Their corporate offices are out of state.

13 Q. Where?

14 A. I really don't know. I guess the publisher is  
15 probably in New York or Chicago, I don't know.

16 Q. Where was the suit filed?

17 A. I think we filed in Chicago. I'm not for  
18 sure -- yeah, I know we did.

19 Q. Who was your counsel?

20 A. I can't remember their name. They were on the  
21 105th floor of the Sears Tower. So were their fees.

22 Q. Up high?

23 And what has been your experience in the  
24 printing business with Williamson over that period of  
25 time? Perhaps that's difficult to explain, I don't know,

1 but if you could explain.

2 MR. PINKERTON: Bill, I don't understand  
3 the question.

4 THE WITNESS: I don't understand the  
5 question.

6 Q. (By Mr. Harris) Well, what jobs have you had in  
7 the printing business with Williamson?

8 A. Howard and I started the same thing. I started  
9 doing lock up on type trays, I think was probably my  
10 first job there. I did lock up and full proofs, letter  
11 press, ran letter press. I made plates and shot films,  
12 did stripping, ran press. I was a press helper and then  
13 ran a small press, worked in the bindery, operated a  
14 cutting machine, folding machine, swept floors, did a lot  
15 of floor sweeping, cleaning up.

16 We had a -- we used to sell legal and  
17 financials -- we had what you call country sales where we  
18 sold blank books and legal forms to county seats and  
19 banks. My first job out of school was as a salesperson  
20 for -- I had from Fort Worth west calling on banks and  
21 attorneys.

22 Q. On what?

23 A. Calling on banks and attorneys --

24 Q. Yeah.

25 A. -- and county seats. And then I did that for

1 maybe a year and then I got into commercial sales, and I  
2 guess which I still am. I still handle quite a bit of  
3 sales for our company as well as being head of  
4 operations. I became president in, I don't know, '86 or  
5 '87, something like that.

6 Q. I couldn't hear you.

7 A. '86 or '87, couple of years after my father  
8 passed away and we reshuffled a little.

9 Q. Have you brought me forward to the present?

10 A. Yes, sir.

11 Q. When did you become president, did you say?

12 A. I think probably '86 or '87, '85, '86 or '87,  
13 I'm not real sure, somewhere in that time period.

14 Q. When did Mr. Davis begin to work with the  
15 company, before you did or after you did?

16 A. After I did. Bill has been there for -- golly,  
17 Bill, 25 years, I think, maybe a little longer, don't  
18 know, somewhere between 25 and 30 years.

19 Q. What is it you believe you invented? I don't  
20 want a legal statement. I know you're not a lawyer,  
21 we're getting into that again, but as you sit here today  
22 what is it you believe you invented?

23 MR. PINKERTON: I object to the form of the  
24 question.

25 THE WITNESS: There is no question in my

1 mind that we invented an interstation upstream flexo  
2 printer/coater. That was my conception from 1992.

3 Q. (By Mr. Harris) Just a coater?

4 A. Printer/coater.

5 Q. Printer/coater? Just a printer/coater. What  
6 does that mean? I asked you about a dedicated station  
7 earlier.

8 A. Did you --

9 Q. Yes, I asked you a question about what if there  
10 was a dedicated station, as a first station?

11 A. When did you ask me that?

12 Q. Earlier, before now.

13 A. Oh, not just then? I thought I might have been  
14 daydreaming.

15 Q. No, no, you weren't.

16 A. So ask me that again.

17 Q. Is it your belief that your invention includes a  
18 dedicated station as an upstream station?

19 A. Yes, sir.

20 Q. So why do you say interstation when you were  
21 telling me?

22 A. You asked me about our invention.

23 Q. Yeah, and I now ask you what do you mean by  
24 interstation?

25 A. Well, between upstream -- between either the

1 last printing unit or between the last -- the first and  
2 the second.

3 Q. What is between it?

4 A. A coating system, anilox -- anilox printing with  
5 a flexo unit anilox coater/printer, either dedicated on  
6 the last station or between the stations and following  
7 that by printing offset lithography.

8 Q. What does dedicated mean to you?

9 A. Dedicated --

10 Q. I want to make sure we're conversing.

11 A. Yeah. What does dedicated -- it won't do  
12 anything else except do that specific function.

13 Q. Right. So what's theis -- try to explain how  
14 that relates to interstation. Interstation means between  
15 stations, doesn't it, and if you have a dedicated first  
16 unit --

17 A. Well, if it's between one and two that unit  
18 becomes really a dedicated unit.

19 Q. Well, it's not dedicated, is it, unless -- how  
20 about permanent dedicated? It's just a flexo unit, the  
21 first one that I'm talking about, not dedicated. That's  
22 all it will do.

23 A. I've never seen it done until my conception.  
24 Never saw it. Never heard of it.

25 Q. I'm not asking you that. I want to know if



1 that's part of the invention?

2 A. I believe it's part of the invention. You asked  
3 me that and I said I believe it is.

4 Q. Well, then why do you call that interstation?

5 A. I say interstation also because it --

6 Q. Now you are saying also, right?

7 A. Yes, sir.

8 Q. You're including both?

9 A. If you're going to print flexo upstream on an  
10 offset press, I believe our patent covers that.

11 Q. Well, did -- I don't want to get into anything  
12 drawn out right now. I'm hungry.

13 (Discussion off the record)

14 Q. (By Mr. Harris) I'd like to find out personally  
15 what you can handle in the way of some equipment. I know  
16 you must know a lot about presses. You said you actually  
17 got hands-on for a long time?

18 A. Yes, sir.

19 Q. That's true, isn't it.

20 Do you know how to operate and adjust and  
21 whatnot what I call the Rendleman coater? That's the  
22 ones that you got from my client?

23 A. I believe I could.

24 Q. Have you ever done it?

25 A. No, sir.

1 Q. Have you ever indicated that your people  
2 generally had trouble trying to operate the coater and  
3 ask for instruction on how to do it?

4 A. The only thing I remember is that, and it wasn't  
5 just the coater, it was other pieces of equipment that we  
6 had gotten from PRI that they had no manuals in regards  
7 to that, and we have a very stringent training process at  
8 our company and all manufacturers must supply manuals  
9 and -- to the safety department as well as engineering  
10 and we did not have any of that documentation for any of  
11 their equipment.

12 So I did write them a letter, I know,  
13 requesting manuals. And then we did have some operation  
14 problems and parts kept breaking down and they were  
15 having to go back to their facility to get parts. Every  
16 time we ran the coater we had problems with that.

17 So yes, I did request two things, one was  
18 manuals, which we deemed a requirement to do business  
19 with us; and two, is assistance because they were having  
20 considerable amount of problems with the coaters.  
21 Primarily they were maintenance issues. I guess they  
22 were all maintenance issues.

23 (Deposition Exhibit 2 marked)

24 Q. (By Mr. Harris) Now, as I -- I have handed you  
25 what appears to be a letter signed by you to Bird and

THOMSON SOUTHERN

1 Garner of PRI.

2 A. Uh-huh.

3 Q. Dated December the 5th, 1996 and it's on the  
4 company's letterhead. This is a letter you sent, is it  
5 not?

6 A. This is one of many, I think.

7 Q. Let me try again. This is a letter you sent, is  
8 it not?

9 A. Yes, I sent this letter.

10 Q. I would like to read to you the first paragraph.  
11 We keep having trouble -- oh, first of all, I thought it  
12 was December and you thought it was September when you  
13 first ran the coater. Do you recall when you first ran  
14 it interstation?

15 A. Yes, sir.

16 Q. Of 1995?

17 A. Yes, sir.

18 Q. So this was at least a year later and maybe more  
19 than a year later, right, from the time that you first  
20 ran the coater?

21 A. Again, I'll have to just think in my head the  
22 dates. I think this is about six months. I think we  
23 started the coater up in September or October of '95.

24 Q. And that's six months? That's more of that  
25 Aggie mathematics.

1 MR. PINKERTON: Object to the form of the  
2 comment.

3 THE WITNESS: I made a mistake. September,  
4 October, November, December, three or four months.

5 MR. PINKERTON: This is '96, Jesse.

6 Q. (By Mr. Harris) That's a year, sir, '96 versus  
7 '95.

8 A. Oh, okay, excuse me, I'm sorry.

9 Q. That's like getting mixed up when you went to  
10 Atlanta, sir.

11 MR. PINKERTON: I'm going to object to the  
12 comment. The question is whether or not you looked at  
13 the top of the letter or not.

14 THE WITNESS: No, I didn't, sorry.

15 Q. (By Mr. Harris) I'll try to read that paragraph  
16 again. We keep having trouble every time we start up the  
17 EZ coater. All of our people say they have never been  
18 trained on the equipment and have to call you when they  
19 use it. They say there are no manuals, no instructions,  
20 etcetera, on what they need to do.

21 The EZ coater is the interstation coater  
22 that you first used and got from PRI, is it not?

23 A. I don't know since you gave me that date.  
24 That's -- when did we put the second and third coater, I  
25 don't remember.

1 Q. You may have had all three of them in there,  
2 right?

3 A. Yes.

4 Q. And still didn't know how to run them, sir?

5 A. No, we were running them. I said we were having  
6 trouble.

7 Q. Well, don't you say that you're having trouble?

8 A. I said we were having trouble with them.

9 Q. And don't you say -- isn't it fair --

10 A. If you'll let me finish.

11 Q. Well, I want you to let me finish, but you can  
12 have the floor.

13 A. You asked me a question.

14 Q. You gave me an answer, I thought.

15 MR. PINKERTON: I don't believe he finished  
16 the answer, Bill.

17 Q. (By Mr. Harris) We had a misunderstanding. Go  
18 ahead and answer.

19 A. We were having trouble with the coaters, we  
20 continue -- as we still do. It was my understanding from  
21 Bird and Garner and maybe Ron and other people over there  
22 that those coaters have a blade on them that's very  
23 dangerous if you're not trained well in removing and  
24 putting those blades in.

25 I was very concerned that there was no

1 manuals in regards to that. We had not been trained  
2 thoroughly on the equipment, and they told me that it was  
3 very dangerous, and I actually think that Ron or someone  
4 over there came over and changed the knives out -- or  
5 changed the blade out because they were dangerous and our  
6 people had not been trained on how to change those blades  
7 out. They're very sharp.

8 Q. So you think you could handle it yourself,  
9 though, sir?

10 A. Do I think I could operate the equipment? Yes,  
11 I do.

12 Q. Well, do you think you could change the blades  
13 out?

14 A. I think I could. I think I'd like to be -- I'd  
15 like to either have indication on the equipment that  
16 that's a dangerous area or have a manual that indicates  
17 that it's dangerous or have instructions to me that it's  
18 dangerous -- that it can be dangerous --

19 Q. If you were doing it --

20 A. -- as we do on our other equipment.

21 Q. If you were doing it, you know it's dangerous,  
22 right?

23 A. I do now.

24 Q. Right?

25 A. I do now.

TOP SECRET

1 Q. Have you hurt a hand on it or something?

2 A. No.

3 Q. You haven't had a hand on it at all, have you,  
4 sir?

5 A. No, that's not true.

6 Q. Really?

7 A. Yeah.

8 Q. Have you changed the blades?

9 A. No, I haven't changed the blades. You asked me  
10 if I had a hand on the equipment. Yes, I have.

11 Q. For very long? What did you do to the coater?

12 A. I've just been around it. I have not operated  
13 it, but I have had my hands on it and looked at what we  
14 were doing and give advice to when we're operating it,  
15 but I'm not an operator -- I don't operate the presses  
16 either.

17 Q. But you have in the past?

18 A. I have in the past.

19 Q. And you didn't have to tell somebody that they  
20 hadn't trained you or your personnel to operate the  
21 press, did you?

22 A. Heidelberg -- our -- we have probably the finest  
23 pressman in the country, no if's and's or -- no if's or  
24 and's. We win every major award in the country. We've  
25 been voted by the printing industry as the number one

1 printer in the world the last three years.

2 And Heidelberg, when we changed that  
3 equipment, kept instructors at our facility for one year  
4 to make sure our people were aware on a new piece of  
5 equipment, how to operate it safely without damaging the  
6 equipment or the people.

7 Q. How much money did you pay Heidelberg for the  
8 presses?

9 A. I don't remember.

10 Q. Millions, wasn't it?

11 A. Millions. Millions.

12 Q. How much money did you pay for the three coaters  
13 that you got from PRI?

14 A. I have no idea.

15 Q. Sir, you got one for nothing, didn't you?

16 A. No, I didn't get it for nothing. It cost us  
17 hundreds of thousands of dollars working on the stuff  
18 because it didn't work right.

19 Q. Well, you didn't --

20 A. That's why we ended up pulling one of the  
21 presses out because the equipment didn't operate  
22 properly.

23 Q. You didn't actually work on the coater itself,  
24 did you, sir?

25 A. The coaters created problems -- significant



1 problems. They agreed to the settlement -- agreed to  
2 those problems and settled with it.

3 Q. Do you have any idea how much you actually paid  
4 for the coater rather than what seems to be things you  
5 believe it caused in the way of trouble or damage? Okay.  
6 Just focus on what you paid for it.

7 A. The only thing I know is yesterday someone  
8 brought it up in Howard's deposition that the price of  
9 the coaters were listed and that what they owed us for  
10 printing and damages was subtracted from it. I don't  
11 know what the net figure was.

12 Q. But it wasn't millions, was it, sir?

13 A. I don't know what -- you mean for the coaters?  
14 No, it was not millions. There was other equipment we  
15 bought with that, was one reason that the deal was made,  
16 a significant amount of dryers made that Heidelberg would  
17 not let them put on their equipment.

18 Q. Sir, I'm talking about the coaters. I'm just  
19 talking about what you paid for the coaters.

20 A. It was part of the whole deal, package deal we  
21 discussed.

22 Q. I understood you got one coater for nothing and  
23 that you got one coater for roughly half price?

24 A. Correct.

25 Q. And then finally you got one coater,

1 theoretically for a coater price, whatever that is? I  
2 don't know what was paid on that.

3 A. I agree with you on that.

4 Q. Okay. So if that were the case you're talking  
5 about somewhere between 100 and \$150,000 or at the most  
6 \$200,000, and you're talking in the Heidelberg situation  
7 for what, two presses, you're probably talking about \$5  
8 million or are you talking about more? You must know  
9 generally how much you paid for the Heidelberg presses.

10 A. Oh, yeah, I mean, somewhere around 15 million.

11 Q. Around 15 million for the --

12 A. For five presses.

13 Q. Okay.

14 A. That's not including presses. That includes  
15 Printing Research's UV system, Printing Research's  
16 dryers, other auxiliary equipment. The total package of  
17 the deal was around that, not just presses.

18 Q. Well, if you went to just the presses you would  
19 be somewhere between 12 and \$14 million, wouldn't you?

20 A. I really don't know. I mean, there is a lot of  
21 auxiliary equipment.

22 Q. Huh?

23 A. There's a lot of other auxiliary equipment on  
24 the presses. There's things we --

25 Q. Besides what you just identified?

1 A. Yeah, spray units, cooling systems.

2 Q. Where do you get those?

3 A. Graphics Equipment, who really wanted drying  
4 equipment. They made the spray units and they had people  
5 there for -- on and off for a couple of months, and we  
6 probably spent \$200,000 with them, 150,000. They had  
7 people in there for two or three months.

8 Q. A year later in this letter, December 5, '96,  
9 and you still have the people that feel they are not  
10 trained for one reason or another and are not capable  
11 really handling it in a comfortable manner. Now, that's  
12 a fact, isn't it, for whatever reason?

13 A. No, it's not a fact.

14 Q. Why not?

15 A. The problem we were having was mechanical  
16 problems that we didn't have access to the equipment --  
17 to the parts. They had access to the parts. Their  
18 people -- we would call their people at night to come  
19 over at 3:00 in the morning or 11:00 at night and various  
20 people from Printing Research would come over and go back  
21 and find out what the -- what part they needed and go  
22 back and get it. That was a major problem.

23 Q. May have been, but if you'll look at that first  
24 paragraph you say the people haven't been trained.  
25 You're complaining about the training. You're not

1 complaining about parts.

2 A. No, I said all of our people.

3 Q. That's what you say, all of our people.

4 A. From the pressman up say that they don't feel  
5 like we've been trained on the equipment as we have on --  
6 with other pieces of equipment we buy.

7 Q. It doesn't say --

8 A. With other OEM equipment we buy.

9 Q. It doesn't say that, does it, sir? I understand  
10 that's what you're telling me happens, but --

11 A. No, it says that.

12 Q. -- the paragraph doesn't say that?

13 A. Yes, it does.

14 Q. Where?

15 A. All of our people say they have never been  
16 trained -- let me get my glasses on. We keep having  
17 trouble every time we start up the EZ coater.

18 Q. Uh-huh.

19 A. All of our people say that they've never been  
20 trained on the equipment and have to call you when they  
21 use it. They say there are no manuals, no instruction,  
22 etcetera.

23 Again, this is four years ago, and I don't  
24 remember the exact instance why I wrote this, but we  
25 continually had problem with every piece of equipment we

1 bought from Printing Research.

2 Q. Well, I'm taking it literally for the moment,  
3 and the second paragraph, first of all, we need to have  
4 someone trained on each shift very thoroughly. If you  
5 will set up a specific time and have a script done so  
6 that we can film it, we would be glad to film it.

7 Again, showing a desire to get your people  
8 more familiarized with the equipment and the coater is  
9 what it's specifically talking about, the EZ coater,  
10 because it's referenced in the first paragraph.

11 The next paragraph, in regards to our  
12 people being trained, I'm sure you can understand the  
13 importance of our people being trained on this equipment.  
14 Well, there is no quarrel about what it says. It speaks  
15 for itself, doesn't it?

16 A. Correct.

17 Q. You are pretty direct and persistent in that you  
18 come down in the next paragraph and pretty much say again  
19 what you said before about making arrangements to do  
20 training, true?

21 MR. PINKERTON: Object to the form.

22 Q. (By Mr. Harris) True?

23 A. Yes.

24 MR. HARRIS: John --

25 MR. PINKERTON: You want to take a break.

1 MR. HARRIS: Yes.

2 VIDEOGRAPHER: Off the video record at  
3 12:28 p.m.

4 (Lunch recess)

5 VIDEOGRAPHER: On the video record,  
6 2:00 p.m.

7 Q. (By Mr. Harris) Mr. Williamson, in 1992 when  
8 you were in Germany visiting MAN-Roland what persons did  
9 you visit specifically?

10 A. What?

11 Q. Persons?

12 A. Persons?

13 Q. People, yeah?

14 A. I've got their names down on a note. One was  
15 the head of the training room or they call showroom, I  
16 think, and then the other one ran the facility, and I  
17 can't remember their names.

18 Q. You can't remember any right now?

19 A. No, but I have it written down someplace.

20 MR. PINKERTON: It's in documentation.

21 Bill, that's -- just for the record, it's  
22 in answers to interrogatories.

23 MR. HARRIS: Okay.

24 THE WITNESS: He was real hard to forget.  
25 He drove a red Ford pickup truck.

1 Q. (By Mr. Harris) Because what?

2 A. He drove a red Ford pickup truck in Germany. I  
3 don't think I've ever seen a pickup truck before over  
4 there.

5 MR. PINKERTON: That's not in the  
6 interrogatory answers.

7 MR. HARRIS: Well, I picked something up  
8 extra here. How many are there, John.

9 MR. PINKERTON: I recall two, and you might  
10 ask Jesse about that, but I recall two.

11 THE WITNESS: There's only two people, I  
12 remember, Wolfgang and --

13 Q. (By Mr. Harris) Two you almost remember?

14 A. I remember Wolfgang, but you know, that's like  
15 Smith here.

16 Q. Okay. Let me pass you Exhibit 2. Wait a  
17 minute. You've got it in front of you. This is my copy.  
18 That's the letter of December the 5th, 1996, okay?

19 A. Yes, sir.

20 Q. We talked about it some earlier. I would like  
21 for you to go down to the fourth paragraph starting with  
22 would.

23 A. Uh-huh.

24 Q. I would like to ask you to read that one  
25 paragraph into the record.

1           A.    Would you please get with Bob Emrick and let him  
2 know when you can train our people so we don't have to  
3 keep calling you back time and again just so we can use  
4 the equipment.

5           Q.    Thank you.

6           A.    Earlier -- can I say something else? When I had  
7 the Texas -- the Aggie math or something.

8           Q.    Okay.

9           A.    The second unit was put in in May of '96 and the  
10 third unit was in September of '96, and I believe the  
11 reason that I was voicing my opinion because instead of  
12 having trouble with just one piece of equipment, we were  
13 having trouble with three, so I was addressing that, and  
14 it wasn't a year. It was only maybe -- you know, three  
15 or four months after the installation of the third unit.

16          Q.    Thank you. Did any of your people, by the way,  
17 ever get cut by the doctor blades?

18          A.    I don't know.

19          Q.    Did you ever see one of the doctor blades?

20          A.    Did I ever see the doctor blades?

21          Q.    Yes.

22          A.    Not out of the system.

23          Q.    Were you able to see it in the system?

24          A.    You probably could. I just didn't look for it.  
25 I probably have seen it. I just didn't go down and look



1 for it.

2 Q. So as far as your recollection is concerned you  
3 haven't looked at the doctor blades?

4 A. No.

5 Q. No, meaning you agree with me as far as your  
6 recollection is concerned?

7 A. No, I don't -- I might not have ever looked for  
8 it or whatever you said.

9 Q. Okay. Did anyone ever tell you that -- well,  
10 what did -- what were you lead to believe that it was  
11 made out of or that the blades were made out of?

12 A. You know, the more I think about it, I think  
13 they might be made out of plastic. I'm just trying to  
14 remember my concerns. I think the concern was that they  
15 were going to be -- we were wearing them out very -- a  
16 whole lot and we asked about putting metal blades in that  
17 system and I think that either Ron or someone told us  
18 that it was extremely dangerous and that they recommend  
19 us to keep going with the plastic blades.

20 Q. I appreciate you straightening that out. I  
21 would like for you to think hard to the summer of 1994,  
22 about your traveling during that summer. More  
23 specifically whether you went to Atlanta more than one  
24 time during then?

25 A. During that summer?

25 A. To -- Steve Baker was going to show Bill Davis

1 and myself drying systems at James River. I believe it  
2 was James River, the carton manufacturer, and to see the  
3 UV and drying system at -- oh, I can't remember the name  
4 of the printer. They went out -- they closed the plant,  
5 but they were owned by Katamus.

6 Q. Did someone else accompany you to James River  
7 besides Baker and Davis?

8 A. I kind of remember a -- there was a young lady  
9 that worked for Printing Research. I think she went,  
10 too. I'm not positive. I remember -- I don't remember  
11 if she went, but I think she may have.

12 Q. What did she look like? It's been a while?

13 A. Yeah, I just don't remember.

14 Q. Was she with you at Morton Steakhouse, too?

15 A. No.

16 Q. Was she only with you on the trip to James  
17 River?

18 A. I believe so.

19 Q. What about the other company?

20 A. I don't remember -- like I say, it's a little  
21 fuzzy. I don't remember.

22 Q. Was there anybody else along, not necessarily  
23 from PRI and not necessarily from your company, was there  
24 any other party along on your trip to James River?

25 A. Well, they had a man that took us through the

1 plant.

2 Q. That was after you got to the plant?

3 A. Yes, sir.

4 Q. And what did you see while you were there?

5 MR. PINKERTON: At the James River plant?

6 At the James River plant?

7 Q. (By Mr. Harris) Yes. Thank you.

8 A. What specifically did I go to look for or what  
9 did I see there?

10 Q. Yeah, uh-huh.

11 A. It was an interstation hot air drying, as I  
12 remember.

13 Q. Well, did you see it?

14 A. I don't remember if we got under it and looked  
15 or not. It was a much larger press than what we had, and  
16 I don't remember if we were able to see it or not. We  
17 talked to the people.

18 Q. You at least got input from the people there; is  
19 that what you are saying? You got input from the people  
20 there about how their equipment worked?

21 A. Yes, sir.

22 Q. And how well that equipment worked, true?

23 A. Yes, sir.

24 MR. PINKERTON: Just for the record, you do  
25 need to verbalize the answer yes or no.

FOOTNOTES

1 THE WITNESS: Yes, sir.

2 Q. (By Mr. Harris) Well, what did they have to say  
3 about the drying equipment?

4 A. I really don't remember.

5 Q. You wound up buying some of it, didn't you?

6 A. No.

7 Q. What was it used for, drying units?

8 A. It's an infrared system at the end of the press.

9 Q. What?

10 A. An infrared system at the end of the press. We  
11 tested Printing Research's interstation hot air and we  
12 did not buy it.

13 Q. Who did you buy from?

14 A. The one that was like at James River.

15 Q. Any dryer system?

16 A. We bought end-of-press dryers from Printing  
17 Research and --

18 Q. Infrared?

19 A. Infrared. Interstation we bought -- we  
20 bought -- I think we bought from Printing Research for --  
21 where the -- where we want to set the flexo, dry the  
22 water base.

23 Q. Is it of importance to have a quite good dryer  
24 after the flexo stage?

25 MR. PINKERTON: Object to the form of the

1 question.

2 THE WITNESS: Oh, yeah, I'm sure it's  
3 important. We actually were testing that concept and,  
4 oh, Jesus, the mid '80s or early '80s, and we didn't  
5 believe it would work, and we were never able to -- when  
6 evaluating the interstation like for printing inks, we  
7 were never able to get mathematical documentation of any  
8 improvement. And then Howard wanted to put it on the  
9 seven-color because he said that he's made improvements  
10 to what we had had in the '80s and again, we did not  
11 see -- we were not able to measure any improvement.

12 Q. (By Mr. Harris) Where did you say he wanted to  
13 put it?

14 A. On our first -- on this seven-color press  
15 between each unit.

16 Q. Including between the first and second unit?

17 A. Between the first -- it was between each unit of  
18 the seven-color. It actually baked ink onto the back  
19 cylinder and it caused a lot of problems.

20 Q. But do I understand that you finally wound up  
21 with a mixture of units? Some units came from PRI and  
22 some from the other supplier?

23 A. I don't know.

24 Q. You don't know?

25 A. No.

100200-952577

1 Q. Did you get any PRI units at all?

2 A. Oh, yes.

3 Q. Well, I must be confused. You didn't -- I know  
4 there is more than one type of dryer, okay?

5 A. On the first five presses that we purchased from  
6 Heidelberg --

7 Q. Yes.

8 A. -- each one of those presses had PRIs -- well, I  
9 don't know if the fifth one had the -- I think it had it,  
10 too, had IR dryers at the end of press. The triple tower  
11 press had additional interstation drying. I don't  
12 remember where it was on the press. It was more than  
13 one -- between more than one unit, was my understanding,  
14 and I'm trying to do this from memory.

15 Q. I could -- could I perhaps get this information  
16 from Mr. Davis when I resume his deposition?

17 A. You probably could.

18 Q. What is the importance of flexo -- sorry. What  
19 is the importance of flexographic plates to the invention  
20 that you made?

21 MR. PINKERTON: Objection to the form.

22 THE WITNESS: It's a printing plate.

23 Q. (By Mr. Harris) What is its importance as far  
24 as the invention is concerned?

25 MR. PINKERTON: Objection to the form.

1 THE WITNESS: You have to have some way of  
2 reproducing an image to a plate and the side rail plate  
3 or flexo plate would allow us to put an image on it.

4 Q. (By Mr. Harris) Well, what features must a  
5 plate have?

6 A. Must have enough resolution for us to hold a  
7 screen that's acceptable to our process.

8 Q. What companies offer plates with such features?

9 MR. PINKERTON: Object to the form and time  
10 period.

11 THE WITNESS: I don't know them all.

12 Q. (By Mr. Harris) Do you know any of them?

13 A. Yes, sir, Polyfibron.

14 Q. Anybody else?

15 A. There is a -- I mean, BAF --

16 Q. BASF?

17 A. BASF.

18 Q. I think.

19 A. DuPont.

20 Q. Do you know when the companies first offered  
21 such plates?

22 A. No, I don't.

23 Q. Do you know how long that the plates had been in  
24 existence?

25 A. No, I don't.

FOOTNOTES



1 Q. Would you explain for me the importance of a  
2 rack back or retractable mechanism as you envisioned it  
3 when you told Baker about it, if any, as relates to the  
4 invention shown in the 363. That's pretty long. I'm  
5 asking about what you think is the importance of the  
6 retractable mechanism you told Baker about.

7 MR. PINKERTON: Object to the form of the  
8 question.

9 Q. (By Mr. Harris) Do you understand the question?  
10 Did you tell Baker about some retractable --

11 A. Yes, we wanted to retract it.

12 Q. How did you tell him you wanted to retract it?

13 A. I probably -- I don't remember. I don't  
14 remember the conversation.

15 Q. Well, what is a rack back?

16 A. It's my understanding it's a track that you can  
17 remove a device with. That's the definition I give it.

18 MR. PINKERTON: I'm sorry. Would you  
19 repeat that.

20 (Read back requested text)

21 THE WITNESS: Remove the unit with.

22 Q. (By Mr. Harris) What unit are you referring to?

23 A. Be able to pull the anilox head and assembly up  
24 out of the way of the printing unit so you can work on  
25 the printing unit. There has been a lot of -- people

1 were doing it with rack backs for years on the first --  
2 on the last unit of the press.

3 Q. Well, then just putting a standard one of these  
4 rack backs on between the first and second unit will do  
5 the job, wouldn't it?

6 MR. PINKERTON: Object to the form of the  
7 question.

8 THE WITNESS: I would assume it would.

9 Q. (By Mr. Harris) Why didn't you do it?

10 A. Why didn't we do what?

11 Q. Put a rack back in between the first and second  
12 unit on one of your multi unit Heidelberg presses?

13 A. That discussion did come up, and we felt that  
14 the rack would have to be so high in the ceiling that we  
15 didn't have space to get it in and out like we wanted to,  
16 and of course we had seen Printing Research and Dogran's  
17 runs and Epic's and others that were using the rack back  
18 on the front, and so we knew that you could pull it in  
19 and out. And we knew it had to come down, and that was  
20 part of our concept the whole time was to have it where  
21 we could move it in and out of the unit.

22 Q. Interstate, right, and somehow movable or  
23 retractable?

24 A. Yes, sir.

25 Q. Well, why didn't you just get a standard rack.

FOOTNOTES

1 back and use it, then?

2 A. I explained to you we felt that it was going to  
3 be too high to pull -- to move it up out of the way and  
4 the retraction mechanism the way it's done is the best  
5 way for us because of the ceiling height.

6 Q. When did you do that figuring, as you put it?

7 A. I didn't understand your question.

8 Q. Well, I believe I heard you say that you figured  
9 that you would have a ceiling problem, okay. When did  
10 you address that problem? When did you talk about it?

11 A. Probably.

12 Q. And who is we, I'll take it one at a time.

13 A. Bill and I.

14 Q. Okay. When?

15 A. I can't really remember the date, '93, probably.

16 Q. '93?

17 A. Yes, sir, that's when we started looking at  
18 other presses and the height varies for different  
19 presses.

20 Q. Do you have any notes or writings or  
21 documentation to show that you had done that?

22 A. I don't think we have any.

23 Q. Well, how long has the -- what we are calling  
24 now a rack back mechanism been in existence?

25 A. I think I might have seen my first one in '82,

1 maybe.

2 Q. Can the process that's described in the 363,  
3 your patent, can that process be practiced without a rack  
4 back?

5 A. Yes.

6 Q. Explain.

7 A. I believe our patent is if you print offset  
8 after flexo on an offset press, it infringes on our  
9 patent.

10 Q. Does the apparatus that is described in the 363  
11 include a rack back?

12 A. I would think so.

13 Q. Do you think that it's set forth in the patent  
14 as a part of your invention?

15 A. I would think so.

16 Q. Have you any reason to believe that it is  
17 claimed in the patent?

18 MR. PINKERTON: Object to form.

19 THE WITNESS: I don't know.

20 Q. (By Mr. Harris) You don't know either way  
21 whether it's claimed or not?

22 A. No, sir.

23 Q. Does the apparatus in the 363 include the  
24 Rendleman coater?

25 MR. PINKERTON: Objection to form in regard

1 to Rendleman coater. Repeat the --

2 THE WITNESS: It includes the coater that  
3 Bill and I -- I had the idea, Bill and I conceived it and  
4 designed it, and Printing Research made it, if that's the  
5 coater you're discuss -- you're talking about, yes.

6 Q. (By Mr. Harris) Well, I don't know, but it's  
7 the one that's shown in figure two of the patent  
8 application.

9 A. Okay.

10 Q. Do you remember that?

11 A. Yes, sir.

12 Q. Where did figure two come from?

13 A. I have no idea.

14 Q. You didn't draw it, did you?

15 A. What?

16 Q. You didn't sketch it, did you?

17 A. I said I don't know where it came from.

18 MR. PINKERTON: So the record is clear, are  
19 you talking about the figure itself where the -- the  
20 actual drawing, figure two?

21 THE WITNESS: I did not draw figure two. I  
22 do not know who drew figure two or where it came from.

23 Q. (By Mr. Harris) Did you draw the coater that is  
24 shown in figure two as a part of figure two?

25 A. No, sir.

1 Q. Do you know who did that?

2 A. No, sir.

3 Q. Do you know that it came from the outlines of a  
4 PRI brochure, and I'm talking about the coater?

5 MR. PINKERTON: Objection. Assuming a fact  
6 not in evidence.

7 Q. (By Mr. Harris) Did you know that?

8 A. No.

9 Q. Would you take issue with the fact that it  
10 might?

11 MR. PINKERTON: Objection. Asking him to  
12 speculate. Object to the form of the question.

13 THE WITNESS: That would be speculating.

14 MR. PINKERTON: He said he doesn't know  
15 where it came from, Counsel.

16 Q. (By Mr. Harris) Is it possible, then, since  
17 you don't know that it came from a PRI brochure?

18 MR. PINKERTON: Objection. Speculation.

19 THE WITNESS: I don't know.

20 Q. (By Mr. Harris) You don't know whether or not  
21 it came from a PRI brochure?

22 A. I don't know where it came from.

23 Q. Returning to the question of drying between  
24 stages. What features must the drying technology have to  
25 properly practice your invention?

1 MR. PINKERTON: Objection to form.

2 THE WITNESS: I really don't understand the  
3 question.

4 Q. (By Mr. Harris) You do have to have some kind  
5 of drying, don't you, between stages?

6 A. I don't know.

7 Q. Have you ever tried it without a dryer?

8 A. I don't know.

9 Q. And by it, I mean printing in a single pass the  
10 flexo litho process. You know what I mean by flexo litho  
11 process, don't you?

12 A. Printing flexo first or last?

13 Q. Yes, and then a single pass?

14 A. Is that first or last?

15 Q. First.

16 A. Printing flexo first?

17 Q. Yes.

18 A. Okay.

19 Q. Now I've forgotten what my question was.

20 A. Me, too.

21 MR. PINKERTON: You said do you know what a  
22 flexo litho process is.

23 Q. (By Mr. Harris) Do you want to play turnabout  
24 and ask me one?

25 MR. HARRIS: Would you clue me in to what

1 in the world I was talking about?

2 MR. PINKERTON: It was a vague, general,  
3 and confusing question, Bill.

4 (Read back requested text)

5 Q. (By Mr. Harris) Do you know what the question  
6 is now?

7 A. Mine or yours?

8 Q. I don't know whose it is. I think it's mine.

9 A. If flexo litho means printing flexo first and  
10 then litho, then yes, I understand what you're saying.

11 MR. PINKERTON: Are you talking about the  
12 process of --

13 Q. (By Mr. Harris) I'm asking if you've ever tried  
14 the process without a dryer at all?

15 A. I don't know.

16 Q. And then I asked you if you thought it would  
17 work without a dryer?

18 A. Yes, it could work without a dryer.

19 Q. That's what you think?

20 MR. PINKERTON: He's -- go ahead and  
21 verbalize.

22 THE WITNESS: Yes, excuse me.

23 Q. (By Mr. Harris) Returning to figure two and the  
24 coater that is shown in figure two, do you want to look  
25 at the patent? Would that make it a little better?



1 A. Yeah, I'm doing that from memory.

2 Q. I guess we have --

3 MR. PINKERTON: Yeah, since that's what  
4 this lawsuit is about we need to mark that as an exhibit,  
5 rather --

6 MR. HARRIS: It's been marked six or seven  
7 times, I think.

8 (Deposition Exhibit 3 marked)

9 Q. (By Mr. Harris) Now, to get a little more  
10 concrete to what we can visualize. If you turn to figure  
11 two, which I believe you have opened in front of you, and  
12 if I refer to the coater, could you identify on figure  
13 two?

14 A. Can I identify the coater?

15 Q. Yes.

16 A. Yes, sir.

17 Q. What is the coater? It's shown in two  
18 positions, actually, isn't it?

19 A. I think it's marked as 46.

20 Q. Yes, 44, I believe, isn't it? I'm not trying to  
21 put words in your mouth, but --

22 MR. PINKERTON: Mr. Williamson, he's  
23 talking about the entire device.

24 THE WITNESS: The whole device?

25 MR. PINKERTON: Yeah, not just the anilox

1 roller.

2 MR. HARRIS: I think that 46 is the roller.

3 MR. PINKERTON: 46 is the roller and 44 is  
4 the head assembly and I don't know what the patent calls  
5 the whole device, maybe it's 30.

6 Q. (By Mr. Harris) And you would agree with me  
7 that it shows 43 as a phantom position, that is one that  
8 it moves into, yes?

9 A. Yes, sir.

10 Q. And 44 is in position where it contacts the  
11 blanket roller; is that true, sir?

12 MR. PINKERTON: Well --

13 THE WITNESS: Yes.

14 MR. PINKERTON: Go ahead.

15 Q. (By Mr. Harris) Blanket cylinder?

16 A. Well, I would call that -- that would become the  
17 plate cylinder with that in that position.

18 Q. Okay. In any event, it contacts part of the  
19 printing mechanism?

20 A. Yes, sir.

21 MR. PINKERTON: And just for the record  
22 Bill, I don't think that the numerals 43 and 44,  
23 reference numerals, talk about it in terms of position.  
24 They have a specific structural meaning.

25 MR. HARRIS: Well, it's really shown, I

1 think, in phantom in a couple of positions, isn't it?

2 MR. PINKERTON: Yes, and I'm just saying  
3 the phantom positions aren't designated by reference  
4 numeral and that's just -- I just want to note that for  
5 the record.

6 MR. HARRIS: Find 43 so you and I can be  
7 together on it.

8 MR. PINKERTON: 43 -- it's coater  
9 apparatus, 43, that's the whole thing. The coater  
10 apparatus is 43. That's column six, line -- about 23,  
11 and let's see 44 is the coater head.

12 MR. HARRIS: It's the coater head, you're  
13 correct.

14 MR. PINKERTON: For the record --

15 MR. HARRIS: So really I see two phantom  
16 positions and one solid line position.

17 Q. (By Mr. Harris) Do you see that,  
18 Mr. Williamson?

19 A. Yes, sir.

20 Q. And would you agree with me that that is the  
21 retractable coater?

22 A. That is a retractable coater, yes, sir.

23 Q. And wouldn't you also agree with me that that is  
24 substantially in the same shape and form as the PRI  
25 coater that you obtained?

1 A. Well, I mean it's like the coater that we asked  
2 them to build for us.

3 Q. Well, whatever it's like. Is it like -- listen  
4 to my sentence. It says the PRI coater that you  
5 obtained. However you obtained it, you obtained it,  
6 didn't you, whether you asked for it --

7 A. Yes, sir.

8 Q. -- or whatever you did, you obtained it?

9 A. Okay.

10 Q. Is it like, then, the PRI coater that you  
11 obtained?

12 MR. PINKERTON: That was made and supplied  
13 to you, is what he's asking you.

14 THE WITNESS: Yes, sir.

15 Q. (By Mr. Harris) Did you and Mr. Davis sit down  
16 and make a drawing or a sketch of such a coater at the  
17 time that you contacted PRI to build it for you?

18 A. Yes, sir.

19 Q. Did you give them a sketch?

20 A. We just gave them a rough sketch, as I remember.

21 Q. Were you there when the sketch was given?

22 A. I don't remember if I was there when it was  
23 actually handed to them or not --

24 Q. Were there any --

25 A. -- or discussed with them.

1 Q. Sorry?

2 A. Or discussed with them.

3 Q. Were there any specifications given?

4 MR. PINKERTON: Object to form.

5 THE WITNESS: Certain specifications, yes,  
6 sir.

7 Q. (By Mr. Harris) Do you recall what the  
8 specifications were?

9 A. I was only involved in some of those that I felt  
10 it was necessary to be part of the equipment, would be  
11 speed, it had to meet press speeds, it had to -- no if's  
12 and's or but's needed to come out of the unit so we could  
13 work with the unit, and then the rest of the  
14 specifications would have been -- that I remember  
15 probably would come from Bill.

16 Q. Do you have a copy of those today -- oh, sorry,  
17 you wanted to either change something or add something?

18 A. No. We did let them -- allow them to come over  
19 and measure, you know, the -- for specifics, sizes and  
20 stuff to fit our unit.

21 Q. Do you still have or do you know what happened  
22 to the sketches or the specifications?

23 A. I don't know if we made copies. It's my  
24 understanding they were given to either John Bird or  
25 Steve Baker.

1 Q. And you don't know whether you have anything or  
2 not?

3 A. I do not know.

4 Q. You've looked, though, haven't you or had  
5 someone look?

6 A. I'm sure Bill has looked for them.

7 Q. What?

8 A. I'm sure Mr. Davis has looked for them.

9 Q. What is the function of the anilox roller as  
10 relates to the invention of the 363?

11 A. Sorry?

12 Q. What is the function of the anilox roller as  
13 relates to the invention in the 363 patent?

14 A. To apply the flexo material, slurry or coating  
15 or ink.

16 Q. Can that also be done with alternate form  
17 rollers such as -- or assemblies such as the three roller  
18 assembly?

19 MR. PINKERTON: Objection as to form.

20 THE WITNESS: It doesn't give you the --  
21 yes, you could apply it with a three-roll coater.

22 Q. (By Mr. Harris) So they could be used in the  
23 practice of your invention, the anilox roller?

24 MR. PINKERTON: Object to form.

25 Q. (By Mr. Harris) Sorry. The three-unit roller?

FOOD 95457E.CP

1 MR. PINKERTON: Object to form.

2 THE WITNESS: I really don't know.

3 Q. (By Mr. Harris) What causes you to be  
4 uncertain?

5 MR. PINKERTON: Object to form.

6 THE WITNESS: I just don't know.

7 Q. (By Mr. Harris) I think you told me first yes  
8 and -- or maybe I didn't ask the same question.

9 A. I don't think you asked the same question twice.

10 Q. So you don't know whether it could be used in  
11 conjunction with your invention or not?

12 A. I don't think we can put enough volume down with  
13 a three-roll coater.

14 Q. The amount of print material or the amount of  
15 ink, if you will, whatever the fluid is you are putting  
16 down?

17 A. Correct.

18 Q. What does an anilox roller do? What is an  
19 anilox?

20 A. Well, it's a serrated roller that has cells,  
21 different cells, and you can have a different cell count  
22 of either depth or width.

23 Q. What features does the roller have to have,  
24 merely the cells as you spoke of?

25 A. I don't know.

1 Q. And you told me the advantage of anilox roller  
2 particularly is volume, I believe, is what you said; is  
3 that right, volume of the liquid dispersed?

4 MR. PINKERTON: Objection in regard to his  
5 previous testimony.

6 Q. (By Mr. Harris) Isn't that what you said?

7 A. That's one of the reasons.

8 Q. What is another reason?

9 A. Space. I mean, if you're trying to put it in  
10 between the unit space is an issue.

11 Q. Anything else?

12 A. I don't believe.

13 Q. Do you know what companies offered anilox  
14 rollers when you first realized that you wanted to use an  
15 anilox roller?

16 A. Do I know other companies? Yes, sir.

17 Q. Who did?

18 A. Dogran and Racko and Epic and -- those are the  
19 three that come to my mind.

20 Q. Did Printing Research?

21 A. Only in -- they came to my mind in 1994 when we  
22 got some literature from them.

23 Q. Is -- when did they first offer the anilox  
24 roller technology or to sell you a roller, if you'll have  
25 it that way?

TOP SECRET



1 MR. PINKERTON: Object to the form of the  
2 question.

3 Q. (By Mr. Harris) When did PRI first try to sell  
4 you an anilox roller, either in combination or by itself?

5 A. I don't know.

6 Q. Does the apparatus described in the 363 patent  
7 include an anilox roller?

8 A. Yes, sir.

9 Q. Do you know the importance of a chambered doctor  
10 system to the invention shown on the 363?

11 MR. PINKERTON: Objection to the question.  
12 Objection to form.

13 THE WITNESS: What was the question again?

14 Q. (By Mr. Harris) I was asking you if you could  
15 explain the importance of a chambered doctor system to  
16 the invention shown in the 363 patent?

17 MR. PINKERTON: Object to the form.

18 THE WITNESS: No, sir.

19 Q. (By Mr. Harris) It's true, is it not, that the  
20 chambered doctor systems have been offered for -- had  
21 been offered for several years by -- indeed by 1992, do  
22 you think that's true?

23 A. Yes, sir.

24 Q. And just to be sure I have some notion of its  
25 importance, can the process in the 363 patent be

1 practiced without a chambered doctor system?

2 MR. PINKERTON: Object to the form of the  
3 question.

4 THE WITNESS: I don't know.

5 Q. (By Mr. Harris) Would you describe the test  
6 performed in Heidelberg Germany in -- I believe it was  
7 January of 1995?

8 A. Yes, sir.

9 Q. Would you, please?

10 A. Describe the test?

11 Q. Yes.

12 A. We took some -- we took anilox plates that we  
13 had made here -- I mean, some flexo plates and we had  
14 some images that we had used our WIMS process on earlier,  
15 and we wanted to see what the difference the flexo  
16 process would give to us on our WIMS, and we proofed them  
17 on a second pass, printed the metallics. We addressed  
18 different particle sizes and two different manufacturers.

19 Q. Well, you knew, did you not, that your concept  
20 would work without doing that double pass test?

21 A. The test was primarily done for the resolution  
22 of the plates where -- in conjunction with WIMS. It was  
23 not being tested to see if the process would work. It  
24 was being tested to see if the resolution would work.

25 Q. How were the results?

FOOTNOTES

1 A. Spectacular.

2 Q. Is that pretty good?

3 A. I believe so.

4 Q. I have a friend who would call it awesome.

5 A. I'll say awesome next time.

6 Q. To your knowledge was that the first time such a  
7 test had been performed?

8 MR. PINKERTON: Object to the form. When  
9 you're talking about such test, can you clarify?

10 Q. (By Mr. Harris) The one that you ran in  
11 Heidelberg, Germany, when you did the two-pass test?

12 A. That was the first time that particular test has  
13 ever been done.

14 Q. Well, I'm sure it's the first time in  
15 Heidelberg, Germany on that given day that it had ever  
16 been done, but were you aware of any time that the same  
17 concept generally was followed by a two-pass test?

18 A. No, I don't know of that being done.

19 Q. Yes.

20 A. No, I don't know of that being done. Heidelberg  
21 had never done it before.

22 Q. Had you ever done it before, then?

23 A. Not that particular test.

24 Q. Well, I don't know how to describe it any  
25 better. What had you done that was closest to it?

1 A. Are you talking about the second pass, is that  
2 what you're asking?

3 Q. Well, not just the second pass, doing two  
4 passes, one of them with the flexo only and then run a  
5 pass through for the litho?

6 A. Okay. I don't -- on the test the way we did it,  
7 I don't ever remember it being done before, and I don't  
8 know of it ever being done before.

9 Q. Okay. What is the closest that you came to  
10 doing it previously, the closest test to that?

11 MR. PINKERTON: Objection to the form of  
12 the question.

13 THE WITNESS: I don't know of a two-pass  
14 test being done.

15 Q. (By Mr. Harris) Okay. I'm not sure I can  
16 pronounce what's in my notes here. If I say Brian  
17 Leister or Lister, do you know what I'm talking about, a  
18 Brian Leister poster? If I said that in conjunction with  
19 a knight in shining armor, would that --

20 A. Yes.

21 Q. Would that be a Brian Leister poster?

22 A. I kind of remember that was the artist's name.

23 Q. How were the results achieved for that poster?

24 A. I don't remember.

25 Q. Your company did it, did it not?

1 A. Yes, sir.

2 Q. Did they take it to -- excuse me just a minute.  
3 I had to think a minute. I lost the name.

4 DRUPA. Did you take it to DRUPA or cause  
5 it to be shown at DRUPA, the poster?

6 A. I didn't take it and I didn't show it at DRUPA.

7 Q. Okay. You personally didn't. Did anyone from  
8 your company?

9 A. No.

10 Q. When did the poster come to exist?

11 A. I really don't remember.

12 Q. Do you know who did the poster?

13 A. We did it for Mills Davis or HiFi Color.

14 Q. And you don't know how it was done, though?

15 A. I know it was the WIMS process. I don't  
16 remember how it was produced.

17 Q. So it could have been all lithography?

18 A. It could be.

19 Q. In what way is the so-called WIMS process  
20 related to the process of the 363 patent that's in suit  
21 here?

22 MR. PINKERTON: Object to the form of the  
23 question.

24 THE WITNESS: I don't understand the  
25 question.

1 Q. (By Mr. Harris) You know what the 363 patent  
2 is, don't you?

3 A. Yes, sir.

4 Q. And you know what we have called sometimes the  
5 WIMS patent?

6 A. Yes, sir.

7 Q. What besides the fact that they both relate to  
8 printing color subject matter or doing something with  
9 color subject matter, what is the relationship between  
10 the two?

11 A. We wanted to improve the WIMS process, was one  
12 reason that I originally went to Germany and originally  
13 conceived the idea to improve the metallic looks.

14 Q. Well, do you practice the 363 in the same manner  
15 that you did the WIMS?

16 MR. PINKERTON: Object to the form of the  
17 question.

18 THE WITNESS: Yes.

19 Q. (By Mr. Harris) Invariably?

20 MR. PINKERTON: Objection to the form of  
21 the question.

22 THE WITNESS: I believe so.

23 Q. (By Mr. Harris) Is there anyone that would know  
24 so for sure?

25 A. Probably.

FOOTNOTES

1 Q. Who would it be, do you think?

2 A. Well, our GATF technical person. I mean, I  
3 would have to -- besides myself, I could read it and  
4 probably make sure that everything that I believe was in  
5 both of them.

6 MR. PINKERTON: I'm going to object to the  
7 response. I don't think the witness and you are  
8 communicating, Bill.

9 MR. HARRIS: It seems to me something has  
10 drifted, too.

11 MR. PINKERTON: Yeah. He's talking  
12 about -- I think Jesse has gone back to patents now and  
13 you're on use of the process.

14 THE WITNESS: Oh, I'm sorry.

15 MR. HARRIS: Yeah, I'm basically on just --  
16 I'm using the 363 to talk about the process of the 363.

17 MR. PINKERTON: Yeah.

18 Q. (By Mr. Harris) Not in great detail, but the  
19 broad process of the 363, okay. I take that on the one  
20 hand and then on the other hand I'm talking about the  
21 process that's involved in WIMS, whatever it may be?

22 A. Okay.

23 Q. And I'm not trying to compare words or anything.  
24 This gentleman is correct, I'm not trying to do that.  
25 I'm trying to find out to what extent the processes are

1 related.

2 MR. PINKERTON: I think he testified about  
3 that.

4 THE WITNESS: Putting metallics down.

5 Q. (By Mr. Harris) Is there any other relation?

6 MR. PINKERTON: Well --

7 THE WITNESS: I know of none.

8 MR. PINKERTON: Wait a minute. He's  
9 already -- that's already been asked and answered.

10 MR. HARRIS: Well, it's been asked and  
11 answered again, then, on the record.

12 MR. PINKERTON: It's been asked and  
13 answered. His previous testimony explained it. He's  
14 gone back and it's confusing to him now, obviously.

15 MR. HARRIS: Well, you've worked on this a  
16 while --

17 MR. PINKERTON: No, I haven't worked on it  
18 at all.

19 MR. HARRIS: I really thought you were  
20 trying to help out.

21 MR. PINKERTON: I'm not going to help out.  
22 It's asked and answered already on the record what the  
23 relationship is.

24 MR. HARRIS: I want to be sure it's on the  
25 record this last time. Would you read me the answer to

FOOTNOTES 9625760



1 the last question?

2 MR. PINKERTON: If you ask it enough times  
3 you get a different answer.

4 (Requested text read)

5 MR. PINKERTON: Do you know any other  
6 relationship between --

7 MR. HARRIS: You are not entitled to  
8 cross-examine the witness.

9 MR. PINKERTON: Well, do you want the  
10 record to be accurate and complete or not?

11 MR. HARRIS: I want it the way it is  
12 instead of what you think is accurate and complete, I'm  
13 entitled to also an opinion as to what's accurate and  
14 complete, and it happens to be my time to ask questions.  
15 You have cross-examination, right? Don't -- I hope not  
16 on this point.

17 MR. PINKERTON: Let him explain the answer.

18 MR. HARRIS: No, I'm not going to do that.

19 MR. PINKERTON: He's got a perfect right to  
20 do that.

21 THE WITNESS: Can I say one other thing?

22 MR. HARRIS: I don't know how to stop you.

23 THE WITNESS: It has to do something with  
24 metallics and the metallics have to be laid down first  
25 with the WIMS process.

1 Q. (By Mr. Harris) Okay. That is something they  
2 have in common is the metallics and the metallics have to  
3 be laid down first, okay?

4 A. Yes, sir.

5 MR. HARRIS: I think that was actually a  
6 help. So, thank you, Mr. Pinkerton.

7 MR. PINKERTON: The record --

8 MR. HARRIS: I want to take a break.

9 MR. PINKERTON: -- taken as a whole it will  
10 all work out.

11 MR. HARRIS: Well, sure. I want to take a  
12 break.

13 MR. PINKERTON: Okay.

14 VIDEOGRAPHER: Off the video record,  
15 2:56 p.m.

16 (Recess taken)

17 VIDEOGRAPHER: We are back on the video  
18 record, 3:34 p.m.

19 MR. PINKERTON: Bill, we talked about two  
20 items that Jesse wants to clarify on the record before we  
21 get going.

22 Mr. Williamson, do you have some items on  
23 your previous testimony you want to correct?

24 THE WITNESS: Yes. I personally never gave  
25 PRI any sketches or drawings.

1 MR. HARRIS: Okay.

2 MR. PINKERTON: And when you gave that  
3 testimony were you confused in regard to the previous  
4 sketches you had done?

5 THE WITNESS: Yes, sir.

6 MR. PINKERTON: Okay.

7 THE WITNESS: And then the second was I am  
8 still a little confused about -- you asked me if I --  
9 about my conversation with Steve Baker. I did have a  
10 conversation with Steve Baker in Atlanta. That  
11 conversation was -- that's when I asked Steve if using  
12 our concept of going upstream on a -- with the flexo,  
13 would it be possible -- would they be interested in  
14 modifying their rack back to do the anilox upstream, and  
15 that was my conversation, I do remember that  
16 conversation.

17 MR. PINKERTON: You had a question to him  
18 about -- he misunderstood to say you -- that generally he  
19 made a comment about not remembering the conversation in  
20 Atlanta.

21 MR. HARRIS: Yes.

22 MR. PINKERTON: And I asked him about that.  
23 I said do you remember that conversation, and I said  
24 yeah, I do. And then he said, well, I think you said on  
25 the record that you didn't remember it, and he said

1 that's not right. Is that correct, Mr. Williamson?

2 THE WITNESS: Yes, sir.

3 MR. PINKERTON: You do remember the  
4 conversation?

5 THE WITNESS: Yes, sir.

6 MR. PINKERTON: And you want to clarify  
7 your previous testimony in that regard?

8 THE WITNESS: Yes.

9 Q. (By Mr. Harris) Okay. And we'll all agree that  
10 no offense is intended at all, but we'll all agree that  
11 it was after some discussion and reflection with counsel  
12 that you were able to get this straightened out in your  
13 mind; is that true?

14 A. I don't think so.

15 Q. It's not true? Is that not true, then?

16 A. I remembered the conversation. I thought you  
17 asked me something different than what --

18 Q. No, but you talked to counsel --

19 A. Oh, yes, sir.

20 Q. -- and counsel brought to your attention the  
21 question and discussed the question some with you to find  
22 out if you knew what you were answering or if you really  
23 knew or didn't know; isn't that true?

24 MR. PINKERTON: If he really understood the  
25 question.

1 THE WITNESS: He asked me if I understood  
2 the question.

3 Q. (By Mr. Harris) But so he had to point out the  
4 question first, didn't he?

5 A. Yes, sir.

6 Q. And what words did he use to point out the  
7 question? I don't seek to --

8 A. I don't remember exactly what it was. It was  
9 like what -- the question that you asked me.

10 Q. Then tell me what the question was I asked you,  
11 sir. Of course you can't?

12 MR. PINKERTON: No, I don't think he can't,  
13 Bill, I mean, it's --

14 MR. HARRIS: It's been a while since that  
15 question was asked on the record.

16 MR. PINKERTON: You had a question that he  
17 interpreted one way about a particular detail about that  
18 conversation, and he said I don't recall, and the way it  
19 came out from him was that he didn't recall the  
20 conversation at all.

21 He previously testified about the  
22 conversation, and so the issue was does he have a  
23 recollection of the conversation or not. He did testify  
24 about it. He does have a recollection about it. It  
25 needs to be clarified so that the record will be

1 accurate, and he has clarified it.

2 Q. (By Mr. Harris) Yes, and what I want to know  
3 now is: What is it that you thought I asked about that  
4 you didn't know when you said you didn't remember or  
5 didn't know? What was it you thought I was asking you?

6 A. I can't remember now. I'm sorry. There was  
7 something that you asked and I did not understand it  
8 correctly, I don't think, and I apologize.

9 (Deposition Exhibit 4 marked)

10 Q. (By Mr. Harris) I pass you what is entitled  
11 memorandum and what has been marked as Jesse Williamson  
12 number 4, Exhibit 4. I note you are a copy recipient,  
13 you didn't actually author, I trust, this particular  
14 memo, but you and your brother are copy recipients?

15 A. Yes.

16 Q. Do you recall this memo?

17 A. I think so.

18 Q. Well, what does it relate to generally?

19 A. Our second trip to Heidelberg.

20 Q. Is this the same trip or different trip than  
21 related to the test you described in Germany?

22 A. Yes.

23 Q. This is the same?

24 A. Yes, sir.

25 Q. I have gotten pretty confused myself. We have

EXHIBIT 4

1 discussed some confusion here. I thought that you saw  
2 MAN on the second trip, but it was Heidelberg?

3 MR. PINKERTON: Which year?

4 Q. (By Mr. Harris) The January '95 trip was the  
5 second trip, I call it the second trip. Had you made  
6 other trips in the meantime?

7 A. To Heidelberg?

8 Q. Yes.

9 A. Yes, we went in August of the previous year.

10 MR. PINKERTON: July.

11 THE WITNESS: Or July, July of '94.

12 Q. (By Mr. Harris) And in '92 your visit was to  
13 where?

14 A. Offenbach, that's outside of Frankfurt.

15 Q. And you saw MAN-Roland?

16 A. Yes, sir.

17 Q. Did you also see MAN-Roland on the Germany trip  
18 in January of '95?

19 A. No, sir.

20 Q. Only Heidelberg?

21 A. Yes, sir.

22 Q. What I was -- I was trying to figure that out.  
23 That is the place that you got the good results; is that  
24 right?

25 A. Yes, sir.

1 Q. Spectacular, I believe, in fact you liked it  
2 real well.

3 Did -- and you bought, I think you bought  
4 the phrase awesome, you were willing to think it was that  
5 good. What did Mr. Davis think about it?

6 MR. PINKERTON: Objection to form. Asking  
7 him to speculate about what Mr. --

8 THE WITNESS: Yeah, I can't speculate what  
9 Bill thought.

10 Q. (By Mr. Harris) Well, what did Mr. Davis  
11 express in the way of a report about it?

12 A. The test went pretty well considering that  
13 Heidelberg had failed to make a silver leaf plate for the  
14 number two form with the Rolex watches, and I don't know  
15 what that means.

16 Q. Do you find a reference in there to it being  
17 spectacular?

18 A. No, sir.

19 Q. Well, maybe you can find a reference in there  
20 relating to it being awesome?

21 A. Bill would only respond to mechanical issues.  
22 In regards to print quality that would be something that  
23 I would be the one that would be commenting on that.

24 Q. I really don't know what you just said, to tell  
25 you the truth. I must not have --

TOP SECRET



1 A. In regards to --

2 MR. PINKERTON: Wait a minute. Let's read  
3 it back.

4 (Read back requested text)

5 MR. HARRIS: No, not right now.

6 Q. (By Mr. Harris) Were Michael Yates and Steve  
7 Clark present during the test?

8 A. Yes, sir.

9 Q. And were they there in connection with their  
10 interest in the ink or fluid?

11 A. Yes, sir.

12 Q. That carried the metallic?

13 A. Yes, sir.

14 Q. So if I wanted a second opinion we could get it  
15 from them, probably?

16 MR. PINKERTON: Objection. Speculation.

17 Q. (By Mr. Harris) Is that true? You think that's  
18 true?

19 A. Second?

20 Q. Did they observe -- well, you gave an opinion  
21 earlier on the result?

22 MR. PINKERTON: Of the print quality?

23 THE WITNESS: Yes, sir. What was the  
24 question?

25 MR. HARRIS: Are you prompting the witness?

1 MR. PINKERTON: No, that's what --

2 MR. HARRIS: You're prompting the witness.

3 MR. PINKERTON: I don't think so.

4 THE WITNESS: Ask me the question again and  
5 I'll be happy to answer.

6 Q. (By Mr. Harris) All I'm trying to find out is  
7 if they could comment on the result?

8 A. I'm speculating if they could or not.

9 Q. Do you know if they actually saw the result?

10 A. Yes.

11 Q. And are they people skilled somewhat in  
12 metallics in this area?

13 A. I believe that Michael Yates has a degree in  
14 flexography from some place in England, and Steve Clark  
15 is a chemist.

16 Q. And then do you think the answer might be yes in  
17 view of that and the fact that they work for whom they  
18 do?

19 A. I would have to -- that would still have to be a  
20 speculation. I don't know if they would comment on it or  
21 not, one way or the other.

22 Q. You wouldn't believe what they said?

23 MR. PINKERTON: Objection.

24 Mischaracterizes his testimony.

25 Q. (By Mr. Harris) You just don't know?

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1 A. Sir?

2 Q. You just don't know about them?

3 A. I don't know.

4 Q. Can you describe the various meetings you had  
5 with Ron Rendleman about the coater or any aspect of the  
6 invention of the 363 in 1994, if any?

7 A. I don't know of -- I don't remember any meeting  
8 with Ron Rendleman --

9 Q. Same --

10 A. -- in my mind.

11 Q. Sorry. Same question, but 1995?

12 A. Did we discuss something about the coater?

13 Q. Do you recall meetings with Ron Rendleman in  
14 1995?

15 A. I can't remember.

16 Q. Can't remember whether you did or not?

17 A. I can't remember if there was a meeting that he  
18 would have called that I would have attended. I don't  
19 remember.

20 Q. Well, as far as I'm concerned I use the term  
21 meeting generically. If it's just you and Ron, that  
22 includes meeting in the sense that I'm using it.

23 A. We could have had a conversation in '95. I  
24 don't know.

25 Q. Do you have any recollection of what was

2 | A. No, sir.

6 A. I don't remember.

9           A.    If I can't remember a meeting, I'm not going to  
0   have any documents.  I don't remember and I don't know of  
1   any documents.

15                   A.    I believe so.

17           A.    I had -- there was various discussions over  
18   several months there, and I don't --

20 A. From -- yeah, from June till -- I know until we  
21 started getting equipment, because he came over to -- he  
22 convinced me to buy their equipment. So there were  
23 conversations going on, I just don't remember what they  
24 were.

25 Q. And what was he trying to convince you to buy at

1 that time?

2 A. Well, different things.

3 Q. I'll bet it wasn't apples and oranges. Can you  
4 remember?

5 A. I can do my best.

6 Q. That's all I ask.

7 A. Power dryers, I think it was vent-a-hoods we  
8 bought from them, a UV system for one of the presses, and  
9 I'm sure there was some discussion of modifying the rack  
10 back to meet our needs for the interstation flexo.

11 Q. Can you be more specific on the latter?

12 A. No, sir.

13 Q. The rack back? No?

14 A. Specific at the meeting or the --

15 Q. Specific about what was discussed about the rack  
16 back in 1994 with Howard DeMoore?

17 A. No, sir, I cannot.

18 Q. Did you communicate any requirements to him  
19 for -- I'll narrow it down now, for the -- what you call  
20 rack back in 1994?

21 A. Specific with Howard?

22 Q. Yeah, with Howard. If there were other people  
23 present, okay.

24 A. I don't remember.

25 Q. I mean that by my definition of these questions

1 of meeting, it's just with Howard or with Howard and  
2 however many people else were present?

3 A. With Howard.

4 Q. You have the same answer?

5 A. Yes, I don't remember.

6 Q. And it follows, I think -- I'll ask you anyway.  
7 Who else was present?

8 A. I don't remember.

9 Q. Do you have any documents from the meeting or  
10 reflecting a meeting with Howard and/or others? I don't  
11 want and/or others, Howard or --

12 A. I think we -- I don't know if it lists the  
13 people's names. Yes, there are some documents.

14 Q. Do you recall off the top of your head as you  
15 sit there what these documents are, any one of them or  
16 more?

17 A. I know we had some proposals.

18 Q. In '94?

19 A. Yes, sir, and I know -- I think I have seen a  
20 letter from someone thanking me for our meeting with  
21 Howard and whoever was in the meeting. I think I  
22 remember that.

23 Q. Internal or --

24 A. Steve Baker or John Bird saying thank you guys  
25 for meeting with us and Howard, because the first two or

1 three meetings we had -- I don't even remember. The  
2 first several discussions we had Howard was not involved.  
3 He did come over because they were trying to convince us  
4 to use their equipment, use their dryers.

5 Q. When was that?

6 A. I probably got involved in -- had to be the end  
7 of May or the first part of June when I got involved in  
8 it.

9 Q. End of what?

10 A. Either the first part of May or June.

11 Q. Of what year?

12 A. Or the last part of May -- either May or June of  
13 '94.

14 Q. Are you indicating to me or are you not that  
15 Mr. DeMoore was present at a meeting or came over,  
16 actually, to see you in a meeting that involved, among  
17 other things, a discussion about a rack back in 1994? I  
18 understand that you -- with the dryers and other things,  
19 too, I'm trying to get it sorted it out down to the rack  
20 back?

21 A. Give me your question one more time, because the  
22 way you worded it said may or may not.

23 Q. You said that Mr. DeMoore came over and you're  
24 thinking it was around May or -- what did you say, May or  
25 June?

1           A.    No, sir, that's not what I said. I said my  
2 original involvement with anyone from PRI or information  
3 about what they had, I believe, came to me in either May  
4 or the first part of June that Bill discussed with me.  
5 We were not buying anything from Printing Research. We  
6 had made a settlement agreement and we had to buy some  
7 stuff from them, but we were not going to buy dryers and  
8 that type of stuff.

9                   There was some bad blood between the two  
10 companies at that time. Mr. Bird had been calling on  
11 Bill and convinced Bill that Printing Research had some  
12 ideas in regards to drying equipment that was of interest  
13 to Bill and he had started to discussed it with me. I  
14 met Mr. Bird and John made me feel comfortable and gave  
15 me confidence in what he was trying to do at Printing  
16 Research. And so then we went to -- that's why we went  
17 to Atlanta.

18           Q.    And what?

19           A.    That's why we went to Atlanta.

20           Q.    Mr. DeMoore didn't go to Atlanta with you, did  
21 he?

22           A.    No.

23           Q.    I was asking you about a meeting that involved  
24 Mr. DeMoore.

25           A.    Well, you mentioned it was in May and June and



1 that's why I --

2 Q. I thought you said May or June.

3 A. No, sir.

4 Q. Okay. Let's focus back on --

5 A. I don't remember when the meetings --

6 Q. Mr. DeMoore?

7 A. I do not remember when the meetings were with  
8 Mr. DeMoore.

9 Q. They could have been in '94 or '95; is that  
10 true?

11 A. I think they were probably in -- well, I know  
12 they were in -- I had meetings with him in '94 and '95.

13 Q. What was the subject of the meetings in '94?

14 A. I can't remember what specifically we talked  
15 about.

16 Q. Can you remember if there was a rack back  
17 discussion between you and Mr. DeMoore?

18 A. I don't remember.

19 Q. Don't remember when?

20 A. I don't remember if I discussed that with Howard  
21 or not.

22 Q. In '94?

23 A. In '94.

24 Q. Or in '95?

25 A. I don't remember having a discussion with Howard

1 about it. I could, but I don't remember.

2 Q. Did you have -- along the same lines of  
3 questioning did you have similar -- kill that.

4 Did you have any discussions or meetings  
5 with Dave Douglas relating in any way to the 363  
6 invention in '94 or in '95?

7 A. I don't remember having a discussion with Dave  
8 Douglas in regards to the 363 patent.

9 Q. The next one is a little more difficult. Did  
10 you have meetings with John Bird about the invention or  
11 any part thereof shown in the 363 patent in '94 or '95?

12 A. Yes, sir.

13 Q. When did the meetings occur?

14 A. The only one I can be specific about was when we  
15 returned from Atlanta and he and Steve Baker came over  
16 and we discussed it.

17 Q. When did you return?

18 A. I'm not real positive. I think it was around  
19 the 16th or 17th or 18th, something like that.

20 Q. Now, your testimony is that's the only one you  
21 can pin down on a general time; is that what it is?

22 MR. PINKERTON: Objection to the form of  
23 the question, contrary to the testimony.

24 Q. (By Mr. Harris) What is the testimony?

25 MR. PINKERTON: In regard to what?

1 MR. HARRIS: In regard to the question I  
2 asked.

3 MR. PINKERTON: There was no question.

4 MR. HARRIS: Well, then don't complain  
5 about the question.

6 MR. PINKERTON: I can't because there isn't  
7 any.

8 MR. HARRIS: If there isn't any, I  
9 certainly agree.

10 MR. PINKERTON: Well, that's the problem.  
11 You're to ask the questions.

12 MR. HARRIS: Well, you seem to be doing all  
13 right.

14 MR. PINKERTON: I'm not asking any  
15 questions. If you want to ask a question, ask it.

16 Q. (By Mr. Harris) Can you recall the first time  
17 that you had a discussion with Mr. Bird that in any way  
18 related to the invention of the 363 or any part thereof?  
19 We all understand the 363 didn't issue until later, okay?  
20 That's just a shorthand way to talk about it.

21 A. Yes, sir.

22 Q. Do you understand the question?

23 A. I remember discussing it with John Bird after my  
24 trip to Atlanta.

25 Q. Do you remember discussing it with him any other

1 time?

2 A. Yes, there were other times we discussed it. I  
3 don't know what those dates are.

4 Q. What is your best memory as to when you did?

5 A. The only one I'm sure that I -- of the specific  
6 time period is right when we came back from Atlanta.

7 Q. Did you see him very frequently after that,  
8 Mr. Bird?

9 MR. PINKERTON: Object to the form of the  
10 question.

11 THE WITNESS: What is frequently?

12 Q. (By Mr. Harris) I don't know. How often did  
13 you see him after that?

14 A. I really don't remember.

15 Q. Who else was present at the meeting you remember  
16 with Mr. Bird after you came back from Atlanta?

17 A. I believe Bill Davis and Steve Baker, both.

18 Q. What?

19 A. I believe Bill Davis, Steve Baker, myself, and  
20 John Bird, as I recall.

21 MR. HARRIS: I have a message about the  
22 tape being at an end.

23 VIDEOGRAPHER: We're off the video record,  
24 4:04 p.m. This is the end of tape two.

25 (Videotape change)

1 VIDEOGRAPHER: We're on the video record,  
2 4:06 p.m. This is tape number three.

3 Q. (By Mr. Harris) Do you have any documents  
4 relating to meetings with Mr. Bird in 1994?

5 A. I have no documents.

6 Q. Do you know if the company has?

7 MR. PINKERTON: Let me -- for the company,  
8 all documents that have been requested have been  
9 produced.

10 MR. HARRIS: Okay. I still can ask the  
11 witness. He might know of something. In the few years I  
12 have been around the business, I find some people do in  
13 the best of faith.

14 Q. (By Mr. Harris) Back to it. Do you know of any  
15 documents relating to meetings with Mr. Bird?

16 A. We have given all of the documents that we have.

17 Q. Do you know of any? I didn't ask you if you  
18 have given them to me.

19 A. Do I know of any? No, I don't know of any.

20 Q. I'm going to go on the same line now with  
21 Mr. Steve Garner, you know him, do you not?

22 A. Yes, sir.

23 Q. Did you have any meetings with Mr. Garner in  
24 1994?

25 A. I think so.

1 Q. Do you recall whether or not the so-called rack  
2 back or any aspect of your idea of the 363 patent was  
3 discussed?

4 A. I can't remember that.

5 Q. You had meetings also in 1995 with Mr. Garner,  
6 did you not?

7 A. Yes, sir.

8 Q. And do you recall what was discussed at those  
9 meetings?

10 A. No, sir.

11 Q. Do you know who else was present?

12 A. No, sir.

13 Q. And do you have any documents or know of any  
14 documents as relates to those meetings in '95?

15 A. No, sir.

16 Q. Have you had any meetings with Mr. Garner in  
17 1996?

18 A. Yes, sir.

19 Q. Do you remember what they were about?

20 A. Not specifically.

21 Q. Same question about 1997?

22 A. Not specifically.

23 Q. Same question about 1998?

24 A. Not specifically.

25 Q. Same question about 1999?

EXHIBIT 363-1000

1 A. I can't remember when Howard came over with  
2 Steve. That was the last time -- last time I think.

3 Q. Some time last year, you think?

4 A. I don't remember if it was the end of '98 or the  
5 first of '99.

6 Q. So could be in '99, but if so that was the  
7 meeting, correct?

8 A. Yes, sir.

9 Q. And was the purpose of that meeting in some way  
10 related to settling a matter?

11 MR. PINKERTON: Objection to the question.  
12 Object to the form.

13 THE WITNESS: Settling.

14 Q. (By Mr. Harris) A matter.

15 MR. PINKERTON: Object to the form. If you  
16 know what that means.

17 THE WITNESS: I'm just trying to think if  
18 it's settling or --

19 Q. (By Mr. Harris) What was the meeting about?

20 A. Well, the first meeting Howard asked us about  
21 our patent, and we discussed licensing or royalties. The  
22 second meeting we had, again we discussed the amount of  
23 the license and royalty, and that was the two meetings  
24 I -- the two last meetings.

25 Q. And no license was ever given or no agreement

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A. Yes, sir.

Q. Tell me about any meetings you have had with Mr. Garner since then.

A. I don't think I've had a meeting since then.

Q. You don't recall a meeting within the year 2000?

A. No, sir.

Q. Do you recall any meetings with Mr. Bird in the year 2000?

A. No, sir.

Q. You were present when Mr. Bird's testimony was taken, were you not?

A. Yes, sir.

Q. Did you talk to Mr. Bird at all during that meeting? Well, it wasn't a meeting, I'll call it a deposition. Outside of the deposition room did you talk to Mr. Bird?

A. Yes, I think we did.

Q. Do you recall what you talked about?

A. How his son was doing, how his wife was doing.

Q. Just general social?

A. Yes, sir.

Q. Was that the same way with Mr. Baker?

MR. PINKERTON: Object to the form.

Q. (By Mr. Harris) Did you have a social



1 conversation with Mr. Baker at the time that his  
2 deposition was taken?

3 A. I wasn't here.

4 Q. I beg your pardon. Let me try Mr. Boyd. Were  
5 you there when Mr. Boyd was taken?

6 A. No, sir.

7 Q. My memory is not too good.

8 MR. PINKERTON: Who is Mr. Boyd?

9 Q. (By Mr. Harris) Were you there when Mr. Steve  
10 Garner was taken?

11 A. No, sir.

12 Q. Oh, Brown, not Boyd.

13 MR. DAVIS: Close.

14 Q. (By Mr. Harris) Were you present when Mr. Brown  
15 was taken?

16 MR. PINKERTON: That was that deposition in  
17 1963.

18 Q. (By Mr. Harris) Is there a demand for the 363  
19 process in your business?

20 A. Yes, sir.

21 Q. Am I to understand that it was a very puny  
22 amount of your total?

23 A. Yes, sir.

24 Q. Could you give me some numbers again,  
25 percentages or dollars or however?

1 A. Less than one percent.

2 Q. Have you made or acquired any additional coaters  
3 in addition to the three that came from PRI?

4 A. Are you talking about anilox printer or coater?

5 Q. Yes, sir.

6 A. Yes, sir.

7 Q. Were those interstation?

8 A. No, sir.

9 Q. How are they being used?

10 A. Are you talking about OEM equipment?

11 Q. Or whatever else you've acquired in the way of  
12 coaters, and by OEM if you mean towers, dedicated --

13 A. Uh-huh.

14 Q. I don't mean that. Those are at the end  
15 invariably in your set up, aren't they?

16 A. Yes, all of the additional coaters that we have  
17 are on the -- that we purchased are on the ends of  
18 presses.

19 Q. And those additional coaters, are they what I  
20 call dedicated to coating or are they worked with some  
21 kind of a device? For example, a rack back of some kind?

22 A. One -- we have two that are made -- well, two  
23 are made by Fall Stayo and we have one that's on rack  
24 back.

25 Q. Describe the first two for me.

TOP SECRET

1 A. They're on web press for applying coating.

2 Q. And for interstation, then you still have the  
3 three, the three that came from PRI?

4 A. We have two that we are using interstation.

5 Q. Are they still working?

6 A. I really don't know.

7 Q. They have been used from time to time since  
8 1995, though, have they not?

9 A. Yes, sir.

10 Q. And you haven't heard that -- the two that you  
11 still have, you haven't heard that they have been junked  
12 or abandoned, have you?

13 A. One is abandoned and one is in operation.

14 Q. One is what?

15 A. One is in operation and one has been abandoned.

16 Q. And is it in operation in the interstation since  
17 that's between stations one and two?

18 A. Yes, sir.

19 Q. Incidentally, these presses like the Heidelberg  
20 that have multiple stations, except for any dedicated  
21 coaters at the end, all of the stations are identical,  
22 are they not? If you have a six-color press, for  
23 example, six of the units are the same, are they not?

24 A. The printing units?

25 Q. Yes, the printing units?

1 A. Offset units would all be the same.

2 Q. Yes, that's the case in general, is it not, from  
3 these presses that you buy from someone like Heidelberg,  
4 the printing units are identical or more or less copies  
5 of one or the other. Is station one different from  
6 station two?

7 A. Could it be? Yes, sir, it could be.

8 Q. Is it?

9 A. On our presses?

10 Q. Yes.

11 A. No, not on our presses.

12 Q. Is station three different from station one and  
13 two?

14 A. No, not on our presses.

15 Q. And that's true throughout the number of the  
16 printing units, isn't it?

17 A. On our --

18 Q. On your presses?

19 A. Yes, sir.

20 Q. And you have quite a few presses, do you not?  
21 We've talked about that, and it's true that what you just  
22 said about your presses is true on all of your presses,  
23 is it not, that the units within a given press are the  
24 same?

25 A. No.

1 Q. Where do we find the difference?

2 A. Well, there are some different models. I mean,  
3 we replaced some of the presses from --

4 Q. In other words, you have one model on one unit  
5 and Heidelberg and then the next one has another model  
6 and the next one has another model?

7 A. You said all of our presses are the same, is  
8 what I thought you said.

9 Q. That's not what I'm trying to say. I may have  
10 said that. What I'm trying to say is that for a given  
11 press or press set all of the units that are printing  
12 units are the same for a given press?

13 A. Yes, sir.

14 Q. And that's true for all of the presses you have,  
15 isn't it?

16 A. That's correct, each press is the same.

17 Q. All right. Did you and Mr. Bird have any  
18 discussions about your filing for a patent on what became  
19 the 363 patent?

20 A. Yes, sir.

21 Q. Would you describe for me those discussions?

22 A. I just remember in -- he was down there for some  
23 reason, and I believe it was Bill and I and John and I  
24 think it was like in the second conference room on the  
25 right. For some reason that's where we always seemed to

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Q. And when was that?

A. I believe it was early '95, January.

Q. Do you want to correct your testimony about that you -- when you said you had filed for a patent?

A. Oh, yeah, I --

MR. PINKERTON: He said we were applying --

THE WITNESS: I said we were going to apply.

MR. PINKERTON: -- going to apply.

Q. (By Mr. Harris) I just didn't hear you correctly. I thought you said had filed.

A. My daughters complain about me mumbling a lot.

Q. Whatever it was, that wasn't what -- if you said that, you didn't intend to say that, did you?

MR. PINKERTON: He didn't say that.

THE WITNESS: Say what?

MR. PINKERTON: Fine.

Q. (By Mr. Harris) We'll let the record stand where it is. We are wasting time.

Do you know at that time -- well, do you know what he said about it? Do you know what he said about it?

A. I don't remember him saying anything one way or

1 the other.

2 Q. Doesn't Mr. Bird often say something?

3 MR. PINKERTON: Object to the form.

4 THE WITNESS: I don't remember --

5 Q. (By Mr. Harris) He is somewhat of a talker,  
6 isn't he, Mr. Bird?

7 MR. PINKERTON: Object to the form.

8 THE WITNESS: I don't remember --

9 Q. (By Mr. Harris) You don't remember him --

10 A. I don't remember if he said anything or what it  
11 was.

12 Q. Okay. You don't remember him saying that PRI  
13 was planning to file an application, too?

14 A. I would have remembered that.

15 Q. But you don't remember it, do you?

16 A. No, I don't -- I would have remembered if he  
17 did. He didn't say that.

18 Q. You know what he didn't say?

19 A. I know that if he had said that I would have  
20 been very upset and there would have been some  
21 communications immediately from me.

22 Q. Do you know whether or not he knew anything  
23 about that at that date, about the subject of PRI filing  
24 a patent application?

25 MR. PINKERTON: Object to the form of the

1 question.

2 Q. (By Mr. Harris) You understand what I'm asking,  
3 don't you?

4 A. I have no -- it would be total speculation on my  
5 part. I don't know.

6 Q. Do you believe that there was a time that  
7 Mr. Baker or Mr. Bird did tell you something about PRI's  
8 application?

9 A. I was never told.

10 Q. Or that it was going to make one?

11 A. I was never told.

12 Q. And that would include by Mr. Garner?

13 A. I was never told.

14 Q. Did you ever tell Mr. Garner about the fact that  
15 you were filing an application?

16 A. I think I did, but I can't remember.

17 (Deposition Exhibit 5 marked)

18 Q. (By Mr. Harris) Can you identify Exhibit  
19 Number 5, Jesse Williamson Exhibit Number 5?

20 A. It says reissue declaration.

21 Q. Is this something that you read carefully at the  
22 time you executed it? You did execute it, did you not?

23 A. Yes, sir.

24 Q. Did you read it carefully at the time you  
25 executed it?

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1 A. I think so.

2 Q. Are you aware of any errors that are in it?

3 A. In the -- in the reissue?

4 MR. PINKERTON: No, he's asking any --

5 MR. HARRIS: Excuse me just a second.

6 MR. PINKERTON: Okay. He's asking you do  
7 you know of any errors in this declaration as it is  
8 written.

9 MR. HARRIS: Yes.

10 MR. PINKERTON: And I don't know how you  
11 are going to answer that without reading the whole  
12 document. So do you want him to take the time to do  
13 that, Counsel.

14 MR. HARRIS: I think he's going to have to  
15 go over these things. By the whole document, what do you  
16 mean?

17 MR. PINKERTON: The whole document.

18 MR. HARRIS: Does that include all of  
19 the --

20 MR. PINKERTON: Well, you have asked him  
21 about reissue declaration here, so he's --

22 MR. HARRIS: Well, I don't think he has to  
23 read the pay stub that's in here or the whole patent, you  
24 would agree with me on that, wouldn't you?

25 Well, yeah, he can read the whole thing.

1 You tell him what to read.

2 MR. PINKERTON: Well, he's going to read  
3 what's responsive to your question, are there any errors  
4 in the declaration as written includes the entire  
5 document. So he can --

6 (Off the record discussion)

7 VIDEOGRAPHER: Off the video record,  
8 4:32 p.m.

9 (Recess taken)

10 VIDEOGRAPHER: On the video record  
11 4:57 p.m.

12 Q. (By Mr. Harris) Mr. Williamson, I believe you  
13 already identified this as reissue declaration, "this"  
14 being Exhibit 5, true?

15 A. Yes, sir.

16 Q. And that you executed it. I believe that is  
17 your signature, is it not?

18 A. Yes, sir.

19 Q. Is there anything in that reissue declaration  
20 that as you now know constitutes an error?

21 A. No, sir.

22 Q. And you do still believe and believed at the  
23 time that the statement, we acknowledge our duty to  
24 disclose any and all information of this material, the  
25 examination of this reissue patent application in

TOP SECRET

1 accordance with 37CFR Section 1.5, Section A. You do  
2 acknowledge that, do you not, the duty to disclose?

3 A. Yes, sir.

4 Q. Counsel has explained that and did explain it, I  
5 trust; is that true?

6 A. Yes, sir.

7 Q. And are you aware of anything that has not yet  
8 been disclosed but needs to be disclosed to the patent  
9 office in the prosecution of this case?

10 A. Of right here?

11 Q. In the prosecution of this reissue application?

12 A. No, sir.

13 Q. Have any of the prior art patents or  
14 publications been discussed with you by your -- have your  
15 attorneys discussed any of the prior publications and  
16 references, prior patents with you?

17 MR. PINKERTON: Object to the form of the  
18 question, particularly in regard to prior art and asking  
19 him about what his --

20 MR. HARRIS: I'm not asking about prior  
21 art. I want to know if there's been discussions with  
22 counsel about prior art.

23 MR. PINKERTON: You characterized it as  
24 prior art patents and something might be prior art or  
25 might not be prior art.

1 MR. HARRIS: Just make it patents.

2 MR. PINKERTON: Okay.

3 Q. (By Mr. Harris) Has counsel discussed patents  
4 with you that might relate to the reissue proceedings?

5 MR. PINKERTON: Patents of other companies,  
6 is what you're talking about?

7 Q. (By Mr. Harris) Any patents? I don't care  
8 which ones.

9 A. Yes.

10 Q. And do you know what the patents are?

11 A. I can't remember.

12 Q. Can't remember any of them?

13 A. I think I remember one about -- MAN had a  
14 dedicated unit. I don't know if it was prior art or not.

15 Q. Don't know if it's what?

16 A. Prior art or not.

17 Q. When did that come to your attention?

18 A. Just recently.

19 Q. Do you know whose patent it was?

20 A. Sir?

21 Q. Do you know what company's patent it was?

22 A. I said I think it was MAN.

23 Q. Oh, okay. How recently did it come to your  
24 attention?

25 A. I would totally be speculating on that. I just

FOUO 345760

1 don't remember when it was.

2 Q. Well, recently doesn't mean six months to you,  
3 does it?

4 A. Well, recently could mean six months to me.

5 Q. Does it in this case?

6 A. I can't remember. I honestly can't remember  
7 when I saw it.

8 Q. Could it have been a week?

9 MR. PINKERTON: A week ago? Is that what  
10 you're saying?

11 THE WITNESS: It was longer than that.

12 Q. (By Mr. Harris) Could it have been a month?

13 A. Yeah. Yes, sir.

14 Q. I'm just trying to get some limits.

15 Was the patent -- did you see the patent?

16 A. Sir?

17 Q. Did you see the patent?

18 A. I don't believe so.

19 Q. What counsel did you discuss it with, what  
20 lawyer?

21 A. I think maybe Bobby and John, I don't remember  
22 if it was both of them or not.

23 MR. PINKERTON: We would object to -- on  
24 the basis of attorney-client privilege with respect to  
25 any of those discussions.

1 MR. HARRIS: I'm not chasing after them  
2 right now.

3 MR. PINKERTON: Okay.

4 MR. HARRIS: Just noticing that Mr. Falk's  
5 hair is changing somewhat.

6 MR. FALK: Reissues often do that.

7 MR. FALK: Let the record note that the --  
8 Mr. Williamson and Mr. Davis have submitted a paper to  
9 the patent and trademark office concerning the patent  
10 that he is alluding to, and that contains information as  
11 to the approximate time it came to his attention.

12 MR. HARRIS: When was the paper submitted?

13 MR. FALK: You should know. I think you  
14 got a copy.

15 MR. HARRIS: I'm not sure I have. I did  
16 start opening my boxes finally.

17 MR. FALK: I think it may be next to the  
18 big box you haven't yet opened. I would say  
19 approximately several weeks ago.

20 MR. PINKERTON: Yeah, three.

21 MR. HARRIS: Well, I have got one that I  
22 thought was the last one that's pretty bulky. Was this a  
23 skinny one or --

24 MR. FALK: This is about another inch  
25 thick.

FOOTNOTES 313-511-100

1 MR. HARRIS: -- the skinny one if it was by  
2 Mr. Falk.

3 MR. FALK: It's about this big. Would you  
4 like to have another copy of it?

5 MR. HARRIS: Yeah, I would.

6 MR. PINKERTON: It would not be correct  
7 that it would be an inch. It would have to be more than  
8 an inch.

9 MR. FALK: Let the record show it may turn  
10 out to be approximately an inch.

11 MR. HARRIS: Let the record show that bets  
12 are in order.

13 MR. PINKERTON: Bets are down.

14 MR. HARRIS: And Mr. Pinkerton and I  
15 probably bet on the same side.

16 MR. FALK: Well, I'll get a six pack from  
17 both of you.

18 MR. HARRIS: Okay. We'll see whether it's  
19 over an inch or not. Thank you very much.

20 MR. FALK: Would you like to have a copy  
21 this afternoon?

22 MR. HARRIS: Of what?

23 MR. FALK: This afternoon?

24 MR. HARRIS: Do you have an extra copy  
25 here?

1 MR. FALK: I don't know if it's an extra,  
2 but it's so short it can be assembled, probably before  
3 you leave.

4 MR. HARRIS: Boy, that is sounding short.

5 MR. PINKERTON: Yeah.

6 MR. HARRIS: Yeah, I'll take it.

7 MR. FALK: I'll go see to it.

8 Q. (By Mr. Harris) I believe I hear you -- heard  
9 you telling me that you weren't sure that you had seen  
10 the patent or a patent, the one we are talking about; is  
11 that true?

12 A. No, I said I believe I saw the one for MAN. I  
13 don't remember any other patents.

14 Q. Was it just one --

15 A. That's all I remember.

16 Q. -- or were there others?

17 Was it a U.S. patent?

18 A. I think it was -- I don't know. I don't  
19 remember.

20 Q. Okay.

21 MR. PINKERTON: It's the subject of that  
22 declaration.

23 MR. HARRIS: I really believe that's all I  
24 have right now on this particular declaration.

25 (Deposition Exhibit 6 marked)



1 Q. (By Mr. Harris) Sir, you have been passed a  
2 document beginning W000768 and ending W000800. It's been  
3 marked Exhibit 6 to your deposition, and I have the same  
4 question of this declaration as I said that I did before.

5 THE WITNESS: Can I have a piece of paper?

6 MR. PINKERTON: Counsel, for the record  
7 there was follow-up declaration of this that made  
8 corrections.

9 MR. HARRIS: But I do want to go over this  
10 one.

11 MR. PINKERTON: You want to --

12 MR. HARRIS: I am aware of that fact  
13 myself.

14 MR. PINKERTON: Okay.

15 MR. HARRIS: You know, actually if he  
16 intends to go into the depth of this thing, reading it  
17 very much, maybe I just ought to take the answer to this  
18 question when we start next time.

19 MR. PINKERTON: That would be fine.

20 MR. HARRIS: I think that would be good for  
21 you and for me.

22 MR. PINKERTON: That would be fine, save  
23 some time.

24 MR. HARRIS: Well, it won't save the  
25 witness time, but it will help us.

1 MR. PINKERTON: Right.

2 MR. HARRIS: And it will get him out a  
3 little sooner, since we begin to fold up for the day and  
4 I will request to complete the deposition.

5 MR. PINKERTON: Yes, sir.

6 MR. HARRIS: But we adjourn as for today,  
7 right?

8 MR. PINKERTON: Yes, sir. Agreed.

9 VIDEOGRAPHER: Off the video record,  
10 5:12 p.m.

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Fuller & Associates, Inc.

# CORRIGENDUM

# CORRIGENDUM

CHANGE/REASON

I, \_\_\_\_\_, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

**Notary Public in and for the State of Texas**

STATE OF TEXAS X

COUNTY OF DALLAS X

I, Christina Cheatham, a Certified Shorthand Reporter duly commissioned and qualified in and for the State of Texas, do hereby certify that there came before me on the 18th day of October, 2000, at the offices of Worsham, Forsythe & Wooldridge, L.L.P., located at 1601 Bryan Street, Energy Plaza, 30th Floor, in the City of Dallas, County of Dallas, State of Texas, the following named person, to-wit: JESSE S. WILLIAMSON, who was duly sworn to testify the truth, the whole truth and nothing but the truth of his knowledge touching and concerning the matters in controversy in this cause; and that he was thereupon examined upon his oath and his examination reduced to typewriting under my supervision; that the deposition is a true record of the testimony given by the witness, and signature of witness is to be before any notary public.

I further certify that I am neither attorney or counsel for, nor related to or employed by any of the parties to the action in which this deposition is taken, and further that I am not a relative or employee of any attorney or counsel employed by the parties hereto, or financially interested in the action.

EX-100-943760

Experiment 1		Experiment 2	
Condition	Mean (SD)	Condition	Mean (SD)
Control	1.2 (0.3)	Control	1.1 (0.2)
Low	1.5 (0.4)	Low	1.4 (0.5)
High	1.8 (0.5)	High	1.7 (0.6)
Very High	2.1 (0.6)	Very High	2.0 (0.7)
Extremely High	2.4 (0.7)	Extremely High	2.3 (0.8)
Maximum	2.7 (0.8)	Maximum	2.6 (0.9)
Minimum	0.9 (0.2)	Minimum	0.8 (0.1)
Baseline	1.0 (0.2)	Baseline	0.9 (0.1)
Stimulus	1.3 (0.3)	Stimulus	1.2 (0.3)
Response	1.6 (0.4)	Response	1.5 (0.4)
Feedback	1.9 (0.5)	Feedback	1.8 (0.5)
Correction	2.2 (0.6)	Correction	2.1 (0.6)
Reinforcement	2.5 (0.7)	Reinforcement	2.4 (0.7)
Punishment	2.8 (0.8)	Punishment	2.7 (0.8)
Extinction	3.1 (0.9)	Extinction	3.0 (0.9)
Generalization	3.4 (1.0)	Generalization	3.3 (1.0)
Discrimination	3.7 (1.1)	Discrimination	3.6 (1.1)
Transfer	4.0 (1.2)	Transfer	3.9 (1.2)
Retention	4.3 (1.3)	Retention	4.2 (1.3)
Spontaneous	4.6 (1.4)	Spontaneous	4.5 (1.4)
Recovery	4.9 (1.5)	Recovery	4.8 (1.5)
Reversal	5.2 (1.6)	Reversal	5.1 (1.6)
Stability	5.5 (1.7)	Stability	5.4 (1.7)
Reliability	5.8 (1.8)	Reliability	5.7 (1.8)
Validity	6.1 (1.9)	Validity	6.0 (1.9)
Objectivity	6.4 (2.0)	Objectivity	6.3 (2.0)
Consistency	6.7 (2.1)	Consistency	6.6 (2.1)
Accuracy	7.0 (2.2)	Accuracy	6.9 (2.2)
Precision	7.3 (2.3)	Precision	7.2 (2.3)
Reliability	7.6 (2.4)	Reliability	7.5 (2.4)
Validity	7.9 (2.5)	Validity	7.8 (2.5)
Objectivity	8.2 (2.6)	Objectivity	8.1 (2.6)
Consistency	8.5 (2.7)	Consistency	8.4 (2.7)
Accuracy	8.8 (2.8)	Accuracy	8.7 (2.8)
Precision	9.1 (2.9)	Precision	9.0 (2.9)
Reliability	9.4 (3.0)	Reliability	9.3 (3.0)
Validity	9.7 (3.1)	Validity	9.6 (3.1)
Objectivity	10.0 (3.2)	Objectivity	9.9 (3.2)
Consistency	10.3 (3.3)	Consistency	10.2 (3.3)
Accuracy	10.6 (3.4)	Accuracy	10.5 (3.4)
Precision	10.9 (3.5)	Precision	10.8 (3.5)
Reliability	11.2 (3.6)	Reliability	11.1 (3.6)
Validity	11.5 (3.7)	Validity	11.4 (3.7)
Objectivity	11.8 (3.8)	Objectivity	11.7 (3.8)
Consistency	12.1 (3.9)	Consistency	12.0 (3.9)
Accuracy	12.4 (4.0)	Accuracy	12.3 (4.0)
Precision	12.7 (4.1)	Precision	12.6 (4.1)
Reliability	13.0 (4.2)	Reliability	12.9 (4.2)
Validity	13.3 (4.3)	Validity	13.2 (4.3)
Objectivity	13.6 (4.4)	Objectivity	13.5 (4.4)
Consistency	13.9 (4.5)	Consistency	13.8 (4.5)
Accuracy	14.2 (4.6)	Accuracy	14.1 (4.6)
Precision	14.5 (4.7)	Precision	14.4 (4.7)
Reliability	14.8 (4.8)	Reliability	14.7 (4.8)
Validity	15.1 (4.9)	Validity	15.0 (4.9)
Objectivity	15.4 (5.0)	Objectivity	15.3 (5.0)
Consistency	15.7 (5.1)	Consistency	15.6 (5.1)
Accuracy	16.0 (5.2)	Accuracy	15.9 (5.2)
Precision	16.3 (5.3)	Precision	16.2 (5.3)
Reliability	16.6 (5.4)	Reliability	16.5 (5.4)
Validity	16.9 (5.5)	Validity	16.8 (5.5)
Objectivity	17.2 (5.6)	Objectivity	17.1 (5.6)
Consistency	17.5 (5.7)	Consistency	17.4 (5.7)
Accuracy	17.8 (5.8)	Accuracy	17.7 (5.8)
Precision	18.1 (5.9)	Precision	18.0 (5.9)
Reliability	18.4 (6.0)	Reliability	18.3 (6.0)
Validity	18.7 (6.1)	Validity	18.6 (6.1)
Objectivity	19.0 (6.2)	Objectivity	18.9 (6.2)
Consistency	19.3 (6.3)	Consistency	19.2 (6.3)
Accuracy	19.6 (6.4)	Accuracy	19.5 (6.4)
Precision	19.9 (6.5)	Precision	19.8 (6.5)
Reliability	20.2 (6.6)	Reliability	20.1 (6.6)
Validity	20.5 (6.7)	Validity	20.4 (6.7)
Objectivity	20.8 (6.8)	Objectivity	20.7 (6.8)
Consistency	21.1 (6.9)	Consistency	21.0 (6.9)
Accuracy	21.4 (7.0)	Accuracy	21.3 (7.0)
Precision	21.7 (7.1)	Precision	21.6 (7.1)
Reliability	22.0 (7.2)	Reliability	21.9 (7.2)
Validity	22.3 (7.3)	Validity	22.2 (7.3)
Objectivity	22.6 (7.4)	Objectivity	22.5 (7.4)
Consistency	22.9 (7.5)	Consistency	22.8 (7.5)
Accuracy	23.2 (7.6		

The seal of the State of Texas, Certified Court Reporter. It features a five-pointed star in the center, surrounded by a circular border containing the text "STATE OF TEXAS" at the top and "CERTIFIED COURT REPORTER" at the bottom.

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THE CHAIRMAN

EXHIBIT



## [54] METALLIC COLOR PRINTING PROCESS

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[73] Assignee: Williamson Printing Corporation, Dallas, Tex.

[21] Appl. No.: 887,510

[22] Filed: May 22, 1992

[51] Int. Cl.<sup>5</sup> ..... G03C 7/00; G03C 5/00; G03F 9/00; H04N 1/21

[52] U.S. CL. .... 430/358; 430/359; 430/22; 430/30; 358/798; 358/534; 358/536

[58] Field of Search ..... 430/358, 359, 30, 293, 430/301, 21, 143, 43, 44, 347; 106/19 R; 358/75, 80, 534, 536, 298

## [56] References Cited

### U.S. PATENT DOCUMENTS

3,663,221	5/1972	Higgins et al.	430/22
4,011,812	3/1977	Julian Lecha	101/177
4,149,183	4/1979	Pellar et al.	358/75
4,180,407	12/1979	Gibson et al.	106/26 A
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,918,622	4/1990	Granger et al.	358/298
4,924,301	5/1990	Surbrook	358/75
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/75
5,053,887	10/1991	Thompson	358/457
5,144,419	9/1992	Nakatsuka et al.	358/75
5,166,809	11/1992	Surbrook	358/456

## OTHER PUBLICATIONS

*Reproduction Review*, Oct. 1965, pp. 6, 10.

*The Photoengraver Bulletin*, Nov. 1949, pp. 43-44.

"Pantone® Metallic Integrated Process Color Selector", by Pantone Metallic-Buntdruck-Farbskala (Pantone).

"Lithographic Guidelines For Metallic Integrated Process Printing" (Crofield).

Primary Examiner—Charles L. Bowers, Jr.

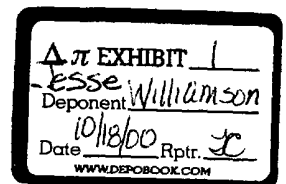
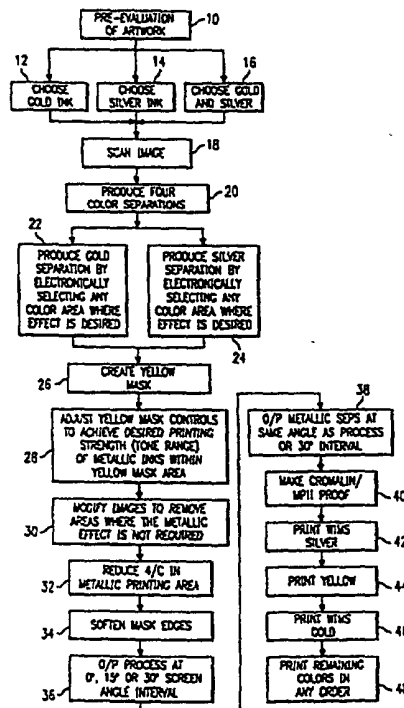
Assistant Examiner—J. Pasterczyk

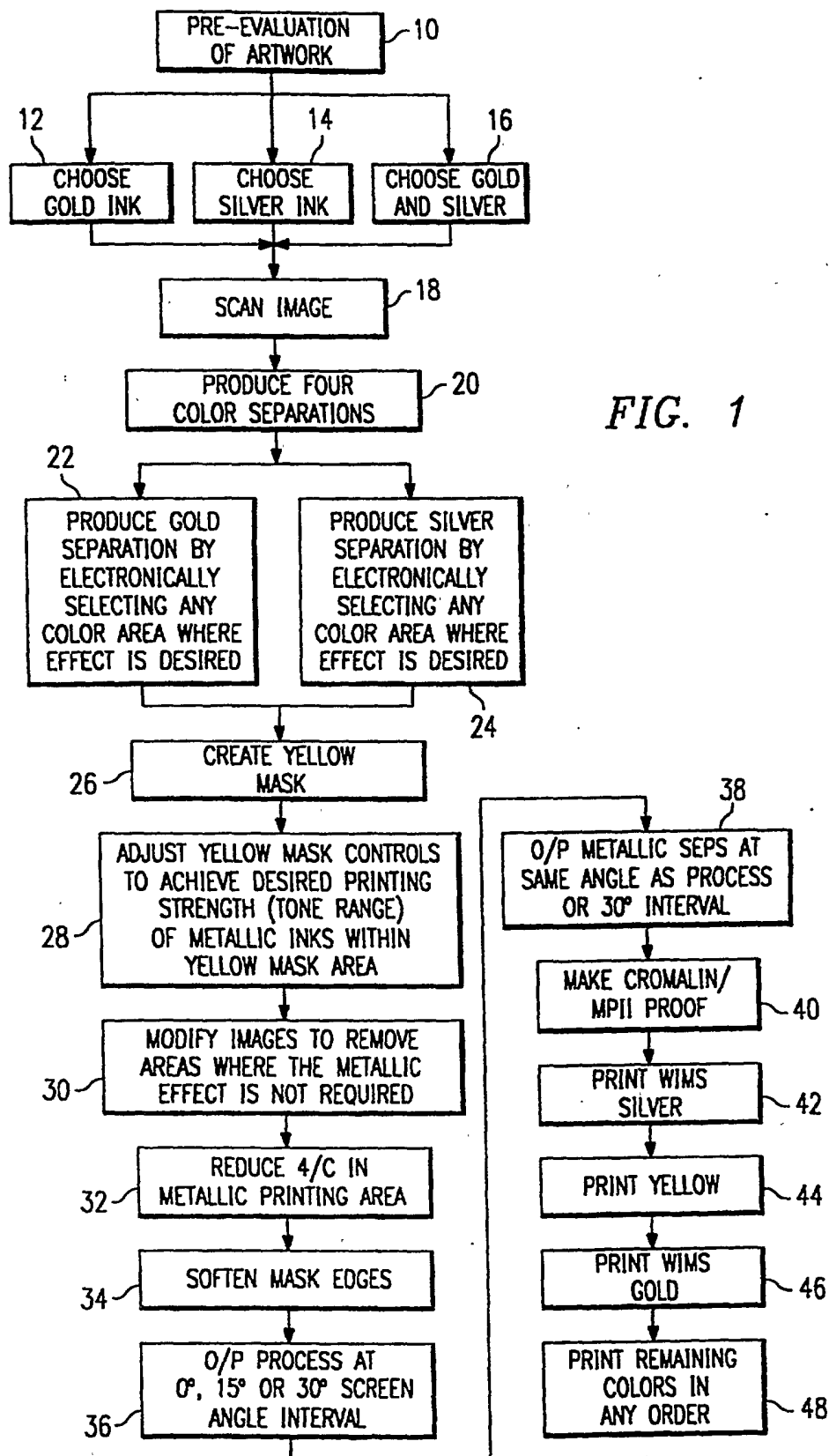
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

## [57] ABSTRACT

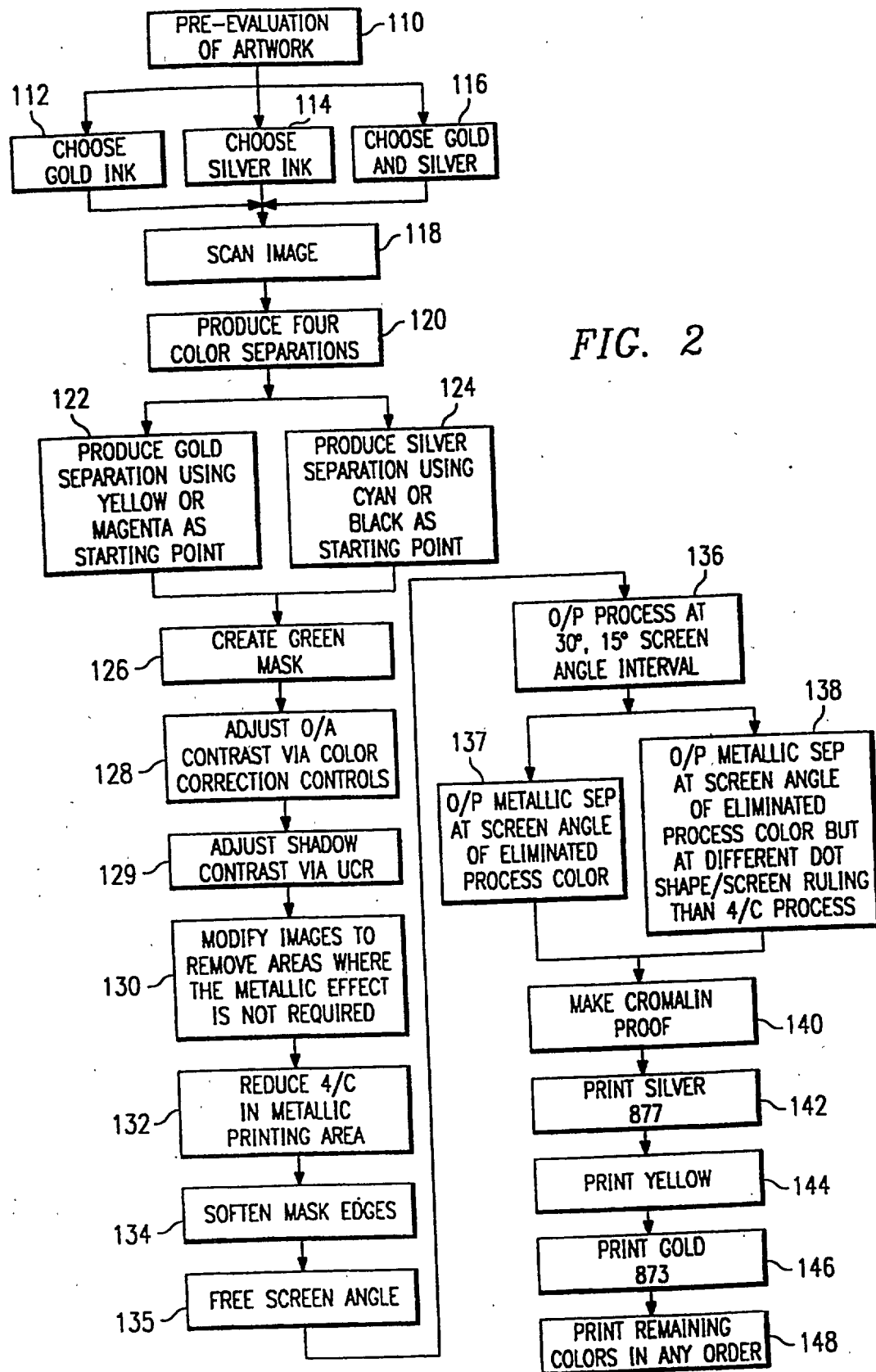
A method of reproducing on a substrate an image incorporating metallic inks involves scanning (18) the image to be reproduced and creating (20) four color separations of the scanned image. Metallic gold and/or metallic silver color separations (22, 24) are created by electronically selecting any color area where the effect is desired. Next, the color separations are edited by creating (26) an electronic yellow mask of the image and adjusting (28) the desired tonal range of the metallic areas. The mask edges of each color separation can also be softened (34). The scanner then outputs (36, 38) the separations to film. The image is then reproduced by printing each of the process color separation films (44, 48) and the metallic separation films (42, 46) onto a substrate.

12 Claims, 2 Drawing Sheets









## METALLIC COLOR PRINTING PROCESS

## TECHNICAL FIELD OF THE INVENTION

The present invention relates to a metallic color printing process. Specifically, this method produces an improved metallic image by printing the subtractive primary colors, black, metallic gold and/or metallic silver at four screen angles.

## BACKGROUND OF THE INVENTION

The reproduction of color was first achieved by Scottish physicist James Maxwell in the mid 1850's. Maxwell photographed a scene three times, once through a red filter, once through a green filter, and once through a blue filter. These black-and-white negatives were contacted to produce positives that were then mounted as slides. Each slide was placed in a different projector and the images were focused together on a screen. A red, green, or blue filter was placed over the lens of each respective projector, thus producing a color image on the screen.

The first single film image for color photography was produced by Louis Ducos du Hauron in France in the late 1860's. In his system, the image on a black-and-white panchromatic emulsion was broken up by a series of red, green, and blue transparent dots or lines that formed a screen in front of the emulsion. The dots and lines were so small that they could not be resolved by the eye. After exposure, the film was reversal-processed to yield a colored positive transparency. The additive-color transparency is still used by the Polaroid Corporation with their 35-ram Polachrome slide process.

The development of the subtractive color systems was also pioneered by du Hauron. He suggested making separation negatives through red, green, and blue filters, then making positive transparencies from each, dyeing them with colors that absorb each respective primary color (i.e. cyan, magenta, and yellow). This subtractive method is difficult to use because it requires the accurate registration of the colored positives or the accurate registration of images from dyed positive matrices. The solution was a three-emulsion film, each layer made sensitive to a different color (red, green, or blue) and then dyed a different color (cyan, magenta, or yellow) in processing. The first successful film of this type was Kodachrome, introduced by the Eastman Kodak Company in 1935.

Printed color reproduction is based on many of the same principles as film color reproduction. Instead of a continuous image, allowed by the film medium, a series of dots are printed on a substrate. These dots are printed in the subtractive primary colors of cyan, magenta, and yellow. Additionally, black is used to adjust the contrast of the image. In the subtractive process, a white substrate is used and red, green, and blue are essentially subtracted to achieve black. By contrast, in the additive system, a black background (i.e. a blank TV screen) is used, and red, green, and blue are added to achieve white. In the additive system the following combinations create the following results:

Red + Green = Yellow  
Red + Blue = Magenta  
Green + Blue = Cyan  
Red + Green + Blue = White

In the subtractive process, the following is true:  
White + Yellow + Cyan = Green

White + Magenta + Cyan = Blue

White + Magenta + Yellow = Red

White + Yellow + Magenta + Cyan = Black

Moreover, each subtractive primary color when added with white produces that same subtractive primary color.

The objective in printing is to produce yellow, magenta, and cyan printing plates that are negative records of the amounts of blue, green, and red in the original.

This is achieved by first photographing the original, in turn, through blue, green, and red filters. These films may then be converted into a halftone dot image suitable for a given printing process. The films are then used to make the image carriers, which may be plates, cylinders, or stencils. Each plate is inked with its appropriate ink, which is then transferred to a white substrate.

The image produced is largely dependant upon dot size and orientation. Orientation is defined primarily by the screen angle of the dot. The screen angle is the angle at which the rulings of a halftone screen are set when making screened images. In other words, the screen angle of a dot is the angle of the line which bisects the often elliptical dots. Standard screen angles have been established for various colors of dots: Magenta (45°), Cyan (75°), Yellow (90°), Black (105°). The interaction of screen angle, color, and dot size effect the quality of the reproduction.

Printing metallic colors, such as metallic gold and metallic silver, poses additional problems. Gold has typically been treated as a shade of yellow, while silver has been treated as a shade of gray. Thus the brilliance of these colors is diminished by the blending of hues which occurs in a four color printing system.

A system known as Metallic Integrated Printing Process (MIPP) has been developed for the reproduction of metallic colors by Eckart-Werke Metal Pigments and Powders of Furth, Bayern, Germany. This system requires numerous steps. First, a designer marks-up the artwork to be copied to designate those areas where the MIPP system is required, i.e. metallic colored areas. Next, a conventional four color separation is produced of the artwork. Each separation is then compared to the original artwork to see which separation gives the best representation of the metallic colors. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether gold or silver is required. Most shades of gold can be obtained from silver and yellow. However, a high percentage of yellow on silver greatly reduces the metallic brilliance. In addition, silver has a grey value of approximately 30% that tends also to reduce the metallic brilliance and thereby dirty colors.

After the four color separations are made, two separations used to print the metallic inks must be developed from two of the four separations. Typically the cyan or black separation will give the best basis for developing the silver separation and either the yellow or magenta for the gold separation. The selected separations are then duplicated to become the gold and silver separations. These separations may require modification to remove image areas where a metallic effect is not required. Comparison with the original transparency may indicate the need to enhance some image areas so as to improve the final metallic effect. The MIPP system anticipates the softening of mask edges of the metallic colors to avoid sharp cut-out effects when the final result is printed. In practice, the task of softening of

mask edges can be handled using electronic image processing equipment.

With the MIPP systemic, a screen angle must be freed for each of the metallic inks to avoid problems of screen clash and resulting moire effects. This can be accomplished by using achromatic or Under Color Removal, ("UCR") color separation techniques where the process color with the lowest value is eliminated in favor of black. UCR involves the technique of reducing the cyan, magenta, and yellow content in neutral grey shadow areas of a reproduction and replacing them with black ink so that the reproduction will appear normal but will use less process color ink. (From the Complete Color Glossary by Miles Southworth, Thad McIlroy and Donna Southworth, Copyright 1992; Published by The Color Resource, Livonia, N.Y. ISBN 1-879847-01-9). Often the cyan will have the lowest value and is the color to eliminate. Since both gold and silver have a process color value, the four conventional separations will need to be modified if the finished print is not to look over-colored or dirty. For example PANTONE 873, the MIPP gold standard, has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. So if the gold areas are to look realistic these colors must be reduced proportionately. The separations may also require modification as the metallic inks have a grey scale value and a failure to take this into account may result in a dirtying of the final colors due to a reduction in their metallic brilliance.

A MIPP image is printed using standard screen angle intervals of 30° or 15°. The screen angle used for a metallic ink is the same as that for the process colors eliminated in favor of a metallic ink. The MIPP system may use different dot shapes to reduce the risk of screen clash. A round dot, with no preferred direction, is typically used for the metallic ink, while an elliptical dot works for the standard process inks. The color standards chosen for MIPP come from the PANTONE System of matched metallic inks, with PANTONE 873 as the gold standard and PANTONE 877 as the silver standard.

Because metallic inks are opaque, they are normally printed before the transparent process colors. But with MIPP the sequence is changed slightly so that the first three colors down are silver, yellow, and gold, respectively. The remaining three process colors are printed in any order. The first three colors, in this order, are very important if the finished print is to look realistic. The use of yellow on silver is necessary to obtain yellow, green and orange metallic effects. Yellow, under gold, is also necessary to maintain the correct tonal values in the highlight areas. Yellow, printed in this way, provides a transition from gold to non-metallic pans of the image. On the other hand, if yellow is printed on top of the gold, there is a loss of metallic sheen without any compensating color benefit.

In summary, the MIPP system presents several disadvantages. First, it requires excessive handwork to create the color mash. Second, the MIPP system requires the elimination of one of the subtractive process colors to free up a screen angle for a metallic color. Third, the MIPP system only allows the printing of four screened colors in any given area. Last, the PMS 873 standard gold ink used by the MIPP system is a dirty, or less brilliant gold ink. This dirty look limits the gold color reproduction to the inherent dirty look even if no other color ink is printed in that area. This dirty look also

necessitates additional color correction of the subtractive primaries. Therefore, a need exists for a printing process which maximizes the appearance of metallic colors. Such a process should allow the use of six colors printed at four screen angles. Moreover, such a process should not limit the number of colors in any given area to four as with the MIPP System.

#### SUMMARY OF THE INVENTION

The present invention relates to the Williamson Integrated Metallic System (WIMS) developed to allow six color printing using yellow, magenta, cyan, black, metallic silver, and/or metallic gold. The WIMS System creates a realistic metallic gold or metallic silver effect using the subtractive primary colors, black, silver and/or gold. The WIMS method comprises a number of steps. The subject to be reproduced is first scanned by a standard scanner and four color separations are created. The original art is then edited to achieve the required metallic effect. Editing comprises the steps of creating a yellow mask, reviewing an electronic version of the image produced by the scanner, determining the amount of contrast between heavy and light metallic regions on the image by one skilled in the art based on past experience, and then sending that contrast information back to the scanner. A "yellow mask" is created to isolate areas where a metallic effect is desired. This "yellow mask" allows the operator to select these areas based on the color and tonal region of the original. For example, those areas appearing neutral are appropriate for silver metallic, while those areas appearing high yellow with a red component are appropriate for the gold metallic. Additional modification of dot size in these isolated areas may be required to avoid moire and reduction in metallic brilliance of the final colors. These colors can be printed at four screen angles: cyan (75°), magenta (45°), silver (45°), gold (75°), yellow (90°), and black (105°).

In the WIMS System, a cleaner, or more brilliant gold color ink is used, wherein the process color value is less than 25% for magenta and less than 5% for cyan. This should diminish any dirtiness caused by the process color values of adjacent primary colors. Additionally, any harsh edge effects caused during printing may be softened during the electronic masking stage. During printing, the silver separation can be printed at the same screen angle as the magenta, while the gold separation can be printed at the same screen angle as the cyan separation.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, and for further details and advantages thereof, reference is now made to the following Detailed Description taken in conjunction with the accompanying drawings, in which:

FIG. 1 illustrates a flow chart of the WIMS System for reproduction of metallic color; and

FIG. 2 illustrates a flow chart of the prior art MIPP System.

#### DETAILED DESCRIPTION OF THE DRAWINGS

The present invention relates to a metallic color printing process, also known as the WIMS System, that overcomes many of the disadvantages found in the prior art. Referring to FIG. 1, a flow chart illustrates the steps involved in the present method.

A first step involves pre-evaluation at step 10 of the subject to determine desired effects and proper placement of metallics in process reproduction. Metallic gold can be chosen at step 12, metallic silver can be chosen at step 14, or a combination of both metallic gold and metallic silver can be chosen at step 16. Next, the image can be scanned at step 18 by a scanner which, in turn, produces at step 20 four color separations which are electronically viewed on the scanner display. The scanner acts as both an input device and an output device. In other words, the artwork is input to the scanner. The scanner can then output color separations or film used to recreate the artwork. The scanning step involves the application of 75% to 100% to the scanner set-up and the scanning of the image. Then, the PCR is removed from the scanner set-up and the image is scanned to an "Imagedit", an electronic color correction machine, produced by the Crosfield Co. of Hemel Hempstead, England.

The original artwork is evaluated in a well known manner by one skilled in the art to determine the color areas in which the metallic effect is desired. A gold separation can be produced at step 22 by electronically selecting any color area where the effect is desired. Likewise, a silver separation can be produced at step 24 by electronically selecting any color area where the effect is desired. Typically, the cyan or black areas of the original art will be the basis for developing the silver printing whereas yellow or magenta areas of the original art will form the starting point for creating the gold printing. It is emphasized that either the gold or silver separations may be produced by selecting any color area where the effect is desired.

Using the Crosfield Imagedit, a "yellow mask" can then be created at step 26 to isolate the areas where a metallic effect is desired from the rest of the separation. The "yellow mask" function gives the ability to select the desired areas electronically based on the tonal region or bandwidth of the original as well as the desired color region. Creating a yellow mask entails several steps. First, an electronic version of the image produced by the scanner displays the contrast between a heavy metallic region and a light metallic region on the image. For example, neutrals are appropriate for silver, while high yellows with a red component are appropriate for gold. The yellow mask controls can be adjusted at step 28 to achieve desired printing strength (tonal range) of metallic inks within the yellow mask area. These controls allow the adjustment of slope, gain, and rolloff of the image within the yellow mask area.

Next, the Imagedit computer creates six revised color separations in a well-known manner; one each for yellow, cyan, magenta, black, gold and silver. Once these electronic masks are created, further modification at step 30 of the isolated area may be required. For example, such modifications may increase or reduce the printing dot size of the metallic separation and/or adjust at step 32 the amount of four color process ink printing over the newly created metallic to compensate for the reduction in brilliance caused by the additional metallic color in the reproduction. Additionally, in a given original, there may be areas of similar color where a metallic effect is desired in one area but not the other. For example, a gold watch requires a metallic gold, while a golden retriever would not. Due to this anomaly, further electronic manipulation of the image may be required to eliminate metallic ink in unwanted areas. Moreover, because all masking is performed electroni-

cally, it is possible to soften at step 34 any harsh edge effects in the final reproduction via mask smoothing or tonal integration techniques.

Next, this information is sent back to the scanner which outputs at step 36 the subtractive process colors and the metallic separations. The MIPP standard for screening is to eliminate (by hand masking) one of the process colors in metallic areas to free-up a screen angle, or to produce the metallic separations at a line screen resolution different than the process colors to reduce moire effects. However, in the WIMS process, the subtractive process colors are output at step 36 at 0°, 15°, and/or 30° screen angle intervals. An interval is the spacing between any two screen angles. The metallic color separations are output at step 38 at the same angles as the subtractive process colors or at 30° intervals. The gold separation can be produced at the same screen angle as the cyan separation. Likewise, the silver separation can be produced at the same angle as the magenta separation. Therefore, with WIMS reproductions, six colors can be printed at four screen angles. For example, cyan can be printed at 75°, magenta at 45°, silver at 45°, gold at 75°, yellow at 90°, and black at 105°. Both process and metallic separations are produced at the same line screen resolution. Typically, there are no problems with moire effect.

The next step involves metallic inks: a gold ink, a silver ink, or both gold and silver. The Pantone MIPP standard for gold ink is PMS 873. This ink printed solid has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. For WIMS reproduction, however, a much more brilliant gold ink is used, wherein the magenta and cyan process equivalents are greatly reduced. This was selected under the rationale that a pure gold ink area of WIMS gold could be reduced in brilliance, but a pure PMS 873 ink area could not be made any more brilliant than the inherent bronze color of the ink. This same color compensation theory also applies to silver areas where a calculated reduction in cyan or black generally occurs.

Prepress proofing at step 40 is accomplished via a combination of 3M Matchprint II (for process colors) and Dupont Cromalin (for metallics). After proofing, the artwork is reproduced by first printing at step 42 the WIMS standard for silver, then printing at step 44 yellow, then printing at step 46 the WIMS standard for gold, and finally printing at step 48 the remaining subtractive primary colors in any order.

FIG. 2 provides a flow chart of the MIPP process which is discussed in greater detail in the Background Section. In sum, the designer marks up the artwork to be reproduced to show where MIPP is required and the image is scanned at step 118. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether to choose at step 112 gold, choose at step 114 silver, or to choose at step 116 both silver and gold. The artwork is then scanned at step 118 by a scanner and a standard four-color separation is produced at step 120. Each separation is compared to the original to determine which gives the best representation of the metallic colors. A gold separation is next produced at step 122 using the screen angle of the process color that was eliminated in that area, as will be discussed in greater detail. Likewise, a silver separation can also be produced at step 124 using the screen angle of the process color that was eliminated in that area.

A green mask is created at step 126 with the scanner and viewed on the scanner display. The overall contrast of the green mask can be adjusted at step 128 via the color correction controls. Shadow contrast can then be adjusted via undercolor removal (UCR). Next, the image is modified at step 130 to remove areas where the metallic effect is not required. The level of the four subtractive process colors can be reduced at step 132 in the metallic printing area. Mask edges can then be softened at step 134.

Next, a screen angle must be freed at step 135 for each of the metallic inks to avoid problems of screen clash and resulting moire effects. In other words, in any one area where a metallic ink is used, the subtractive primary color with the same screen angle must be eliminated or made solid. Thus, no more than four screened colors may appear in any one area of the reproduction. The scanner outputs at step 136 the subtractive process colors to film at 30° and 15° intervals. The scanner can then output at step 137 the metallic separations at a screen angle of an eliminated process color. Alternatively, the scanner can output at step 138 the metallic separations at the screen angle of the eliminated process color but at a different dot shape and/or screen ruling than the four subtractive process colors. Prepress proofing at step 140 is accomplished. After proofing, the artwork is reproduced by first printing at step 142 the PMS 877 standard for silver, then printing at step 144 yellow, then printing at step 146 the PMS 873 standard for gold, and finally printing at step 148 the subtractive primary colors in any order.

Although preferred embodiments of the invention have been described in the foregoing Detailed Description and illustrated in the accompanying drawings, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications, and substitutions of parts and elements without departing from the spirit of the invention. Accordingly, the present invention is intended to encompass such rearrangements, modifications, and substitutions of parts and elements as fall within the scope of the invention.

We claim:

1. In a method of half-tone dot printing a reproduction of a scanned image on a substrate with the four subtractive process colors of magenta, cyan, yellow, and black in a given area of the scanned image at only four screen angles, an improved method of incorporating metallic colors in said reproduction, the improvement comprising the steps of:

printing at least one metallic color in said given area at a selected one of the only four screen angles; and  
printing at least one of said four subtractive process colors in said given area at the same screen angle as said at least one metallic color such that said at least one metallic color and one process color are printed in said given area at the same one of said four screen angles so as to enable at least five colors to be printed at only said four screen angles.

2. A method as in claim 1 further including the steps of:

printing a second metallic color in said given area at a second one of said four screen angles; and

printing a second one of said four subtractive process colors in said given area at the same second one of said four screen angles as said second metallic color so as to have an additional metallic color and an additional process color printed in said given area

at said second one of said four screen angles so that up to six colors are printed at only said four screen angles.

3. The method of claim 1 of reproducing a scanned image on a substrate including incorporating metallic colors and further comprising the steps of:

producing four process color separations of the scanned image, each at one of said four screen angles;

producing at least one metallic color separation at the same screen angle as a corresponding first one of the four screen angles of the process color separations in said given area;

editing each process color separation and the at least one metallic color separation to obtain metallic color separation information;

outputting each process color separation to film creating a process color separation film;

outputting the at least one metallic color separation to film creating a first metallic color separation film; and

printing a reproduction of the scanned image on a substrate using the process color separation films and the at least one metallic color separation film such that both a metallic color separation and a process color separation are produced at the same screen angle.

4. The method of claim 3 of reproducing a scanned image on a substrate including metallic colors anti further comprising the steps of:

producing a second metallic color separation at the same screen angle as a corresponding second one of the four screen angles of the process color separations in said given area;

editing the second metallic color separation to obtain metallic color separation information;

outputting the second metallic color separation to film creating a second metallic color separation film; and

printing a reproduction of the scanned image on a substrate using the process color separation film and the first and second metallic color separation films such that said first metallic color separation and a first process color separation are produced at an identical first screen angle and the second metallic color separation and second process color separation are produced at a second identical screen angle so as to enable up to six colors to be printed in the given area in only four screen angles.

5. The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a gold metallic color separation as the first metallic color separation; and

producing a silver metallic color separation as the second metallic color separation.

6. The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a silver metallic color separation as the first metallic color separation; and

producing a gold metallic color separation as the second metallic color separation.

7. The method of claim 4 wherein the step of editing further comprises the steps of:

reviewing an electronic version of the scanned image to determine regions of the image where metallic color is to be added;

creating a yellow mask for the given area to enable isolation of any region therein where metallic color is to be printed;

electronically adjusting the amount of contrast between the isolated regions to achieve a desired metallic color contrast between said isolated regions so as to obtain metallic color separation information; and

sending the metallic color separation information back to the scanner to provide half-tone dot signals.

8. The method of claim 4 wherein the step of outputting the at least one metallic color separation further comprises the step of outputting the first metallic color separation at the same screen angle as a first process color separation or at a 0°, 15°, or 30° interval therefrom.

9. The method of claim 4 wherein the step of outputting the second metallic color separation further com-

prises the step of outputting the second metallic color separation at the same screen angle as a second process color separation or at a 0°, 15°, or 30° interval therefrom.

10. The method of claim 3 wherein the step of editing further comprises softening an image edge of the process color separations and metallic color separations.

11. The method of claim 3 wherein the step of outputting the process color separations comprises outputting the process color separations onto film at 0°, 15°, or 30° screen angle intervals.

12. The method of claim 1 wherein the step of printing comprises:

- (a) printing the metallic silver onto the substrate;
- (b) printing yellow onto the substrate;
- (c) printing the metallic gold onto the substrate;
- (d) printing the remaining colors onto the substrate in any order.

\* \* \* \* \*

0041696-082001





WILLIAMSON PRINTING CORPORATION

6700 Denton Drive Dallas, Texas 75235 4497 214 904 2100 Fax 214 352 1842 WATS 800 843 5423

December 5, 1996

Via Fax: 357-5847

Mr. John Bird  
Mr. Steve Garner  
Printing Research, Inc.  
10954 Shady Trail  
Dallas, Texas 75220

Dear John and Steve:

We keep having trouble every time we start up the EZ Coater. All of our people say they have never been trained on the equipment and have to call you when they use it. They say there are no manuals, no instructions and etc. on what they need to do.

First of all, we need to have someone trained on each shift, very thoroughly. If you will set up a specific time and have a script done so that we can film it, we would be glad to film it.

In regards to our people being trained, I am sure you can understand the importance of our people being trained on this equipment.

Would you please get with Bob Emrick and let him know when you can train our people so we don't have to keep calling you back time and again just so we can use the equipment.

Please let Bob and I know when the soonest time is that this can be done.

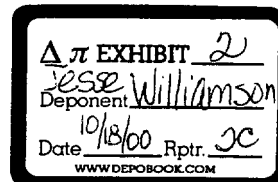
If you have any questions on the above, please let me know.

Thank you for your assistance with this matter.

Sincerely,

Jesse Williamson  
JW/rr

cc: Bob Emrick



CONFIDENTIAL







US005630363A

## United States Patent [19]

Davis et al.

[11] Patent Number: 5,630,363

[45] Date of Patent: May 20, 1997

[54] COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING APPARATUS  
AND PROCESS[75] Inventors: Bill L. Davis, Irving; Jesse S.  
Williamson, Dallas, both of Tex.[73] Assignee: Williamson Printing Corporation,  
Dallas, Tex.

[21] Appl. No.: 515,097

[22] Filed: Aug. 14, 1995

[51] Int. Cl.<sup>6</sup> ..... B41M 1/18; B41M 7/00;  
B41M 1/04; B41F 23/00[52] U.S. Cl. .... 101/141; 101/181; 101/183;  
101/424.1; 101/424.2; 101/479; 101/483;  
101/491; 101/DIG. 49[58] Field of Search ..... 101/135-138,  
101/141-143, 450.1, 174, 180, 181, 183,  
416.1, 424.1, 424.2, 479, 491, DIG. 29,  
DIG. 49, 483

## [56] References Cited

## U.S. PATENT DOCUMENTS

2,499,870	3/1950	Luehrs	101/138
2,988,989	6/1961	Crawford	101/152
3,072,050	1/1963	Wolff	101/DIG. 49
4,011,812	3/1977	Lecha	101/176
4,056,056	11/1977	Giori	101/152
4,180,407	12/1979	Gibson et al.	106/26
4,186,661	2/1980	Vieau	101/178
4,373,442	2/1983	Dahlgren et al.	101/207

4,373,443	2/1983	Matalia et al.	101/221
4,417,516	11/1983	Fischer	101/181
4,421,027	12/1983	Fischer	101/142
4,437,402	3/1984	Fischer	101/181
4,610,201	9/1986	Jeschke	101/DIG. 49
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,796,556	1/1989	Bird	118/46
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/80
5,144,419	9/1992	Nakatsuka et al.	358/75
5,178,678	1/1993	Koehler et al.	118/46
5,184,556	2/1993	Schaeuble	101/483
5,370,976	12/1994	Williamson et al.	430/358

## OTHER PUBLICATIONS

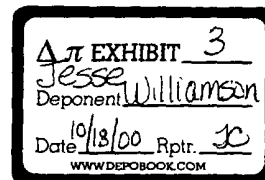
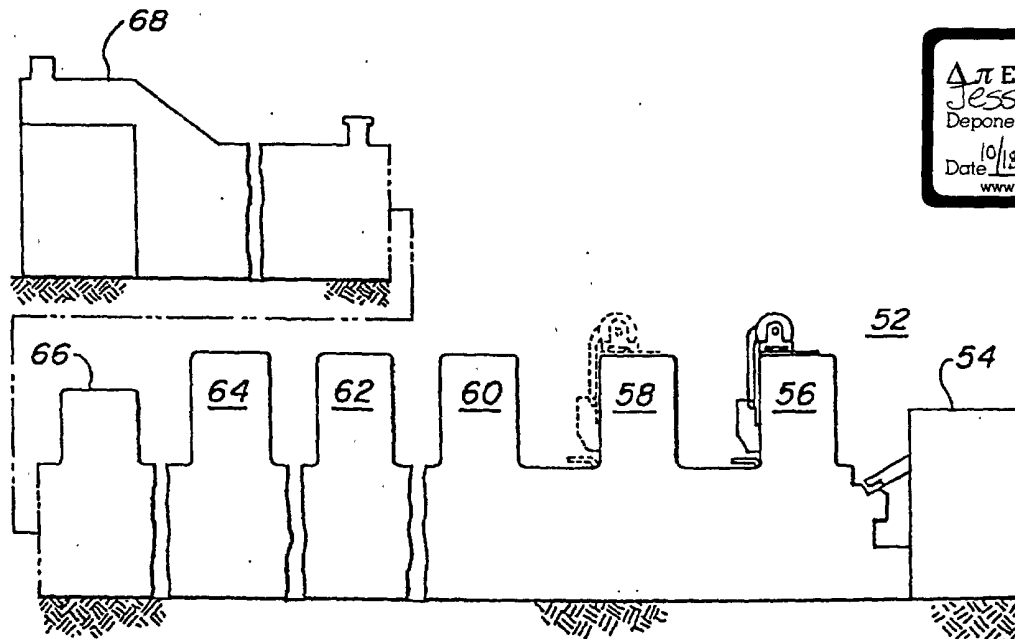
"Pontone® Metallic Integrated Process Color Selector, Pantone Metallic-Buntdruck-Farbskala", The Pantone Library of Color, 201 Pantone, Inc. 1990, pp. MIPP VI-VIII

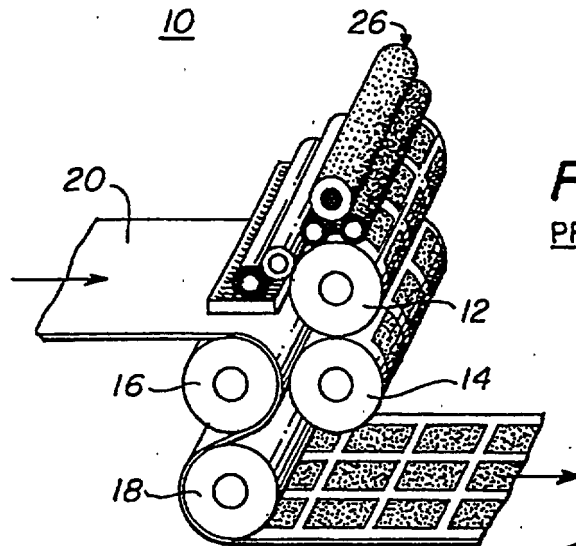
Primary Examiner—Stephen R. Funk  
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

## [57] ABSTRACT

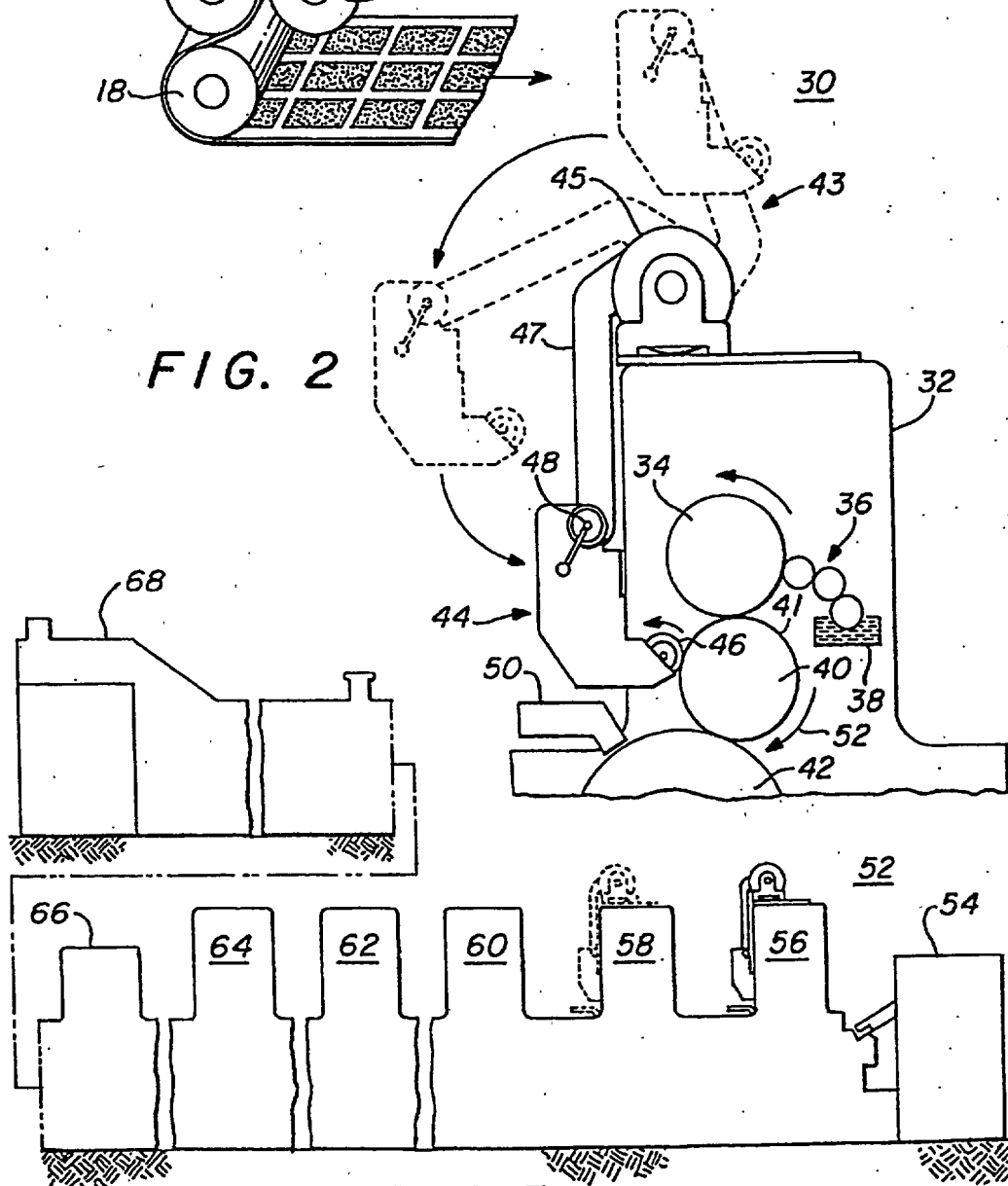
A combined lithographic/flexographic printing process having a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process. One of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process.

41 Claims, 1 Drawing Sheet

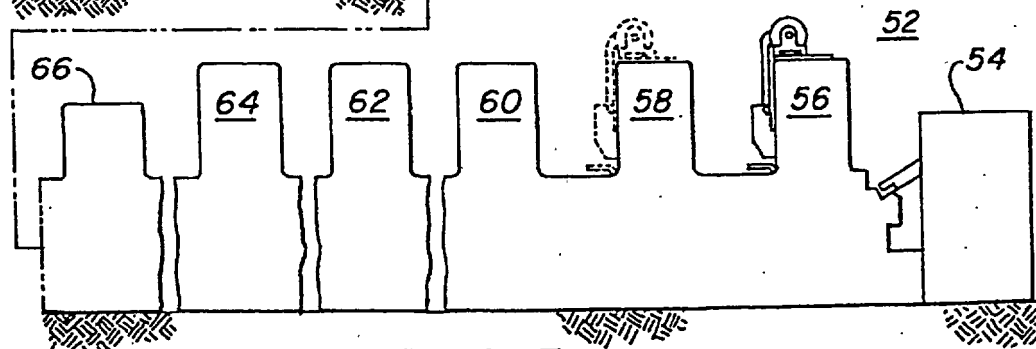




**FIG. 1**  
PRIOR ART



**FIG. 2**



**FIG. 3**

# COMBINED LITHOGRAPHIC/ FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention relates in general to printing machines and processes and in particular to a combined lithographic/flexographic in-line printing apparatus and process.

### 2. Description of Related Art

As used herein, the following terms have the meanings indicated:

#### ANILOX ROLLER

A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In flexo presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remoistenable glue units and to create "scratch-and-sniff" perfume ads.

#### ANILOX SYSTEM

The inking method commonly employed on flexographic presses. An elastomer-covered fountain roller supplies a controlled ink film from the ink pan to the engraved metering roller. After ink floods the metering roller, the fountain roller is squeezed or wiped usually with a doctor blade to remove the excess ink. The ink that remains on the metering roller is then transferred to the rubber printing plate.

#### COATER

A device with a pan to contain the coating material, a pan roller partially immersed in the coating material contained in the pan, and a coater roller to meter off a uniform film of the coating material and apply it to the printing plate.

#### COATING

An unbroken, clear film applied to a substrate in layers to protect and seal it, or to make it glossy.

#### FLEXOGRAPHIC INK

A quick-drying, fluid ink that is highly volatile or an ink that can be water based and nonvolatile.

#### FLEXOGRAPHY

A method of rotary letterpress printing characterized by the use of flexible, rubber, or plastic plates with raised image areas and fluid, rapid-drying inks.

#### HALFTONES

Dot-pattern images that have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion; small halftone dots, when viewed at the normal reading distance, cannot be resolved as individual dots but blend into a continuous tone.

#### LITHOGRAPHIC PLATES

A lithographic plate is precoated with a light-sensitive or otherwise imageable coating, and the separation between the image and nonimage areas is maintained chemically. The image areas must be ink receptive and refuse water and the nonimage areas must be water receptive and refuse ink. The wider the difference maintained between the ink receptivity of the image areas and the water receptivity of the nonimage areas, the better the plate will be, the easier it will run on the press, and, consequently, the better the printing. There are several types of lithographic plates. The plate is an image carrier that is said to be planographic, or flat and smooth.

## LITHOGRAPHY

A printing process in which the image carrier or plate is chemically treated so that the image areas are receptive to ink.

### 5 OFFSET PRINTING

An indirect printing method in which the inked image on a press plate is first transferred to a rubber blanket, that in turn "offsets" the inked impression to a press sheet. In offset lithography, the printing plate has been photochemically treated to produce image areas receptive to ink.

#### SLURRY

A water suspension of fibers or the suspension of pigment and adhesive used to coat papers. It may also include a suspended metallic material such as uniform-sized metal particles or nonuniform-sized metal particles.

#### ULTRAVIOLET INKS

Printing inks containing an activator that causes the polymerization of binders and solvents after exposure to a source of ultraviolet radiation.

Offset lithography is a process that is well known in the art and utilizes the planographic method. This means that the image and nonprinting areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. There are two basic differences between offset lithography and other processes. First, it is based on the principle that grease and water do not mix. Second, the ink is offset from the first plate to a rubber blanket and then from the blanket to a substrate on which printing is to occur such as paper.

When the printing plate is made, the printing image is made grease receptive and water repellant and the nonprinting areas are made water receptive and ink repellant. The plate is mounted on the plate cylinder of the press which, as it rotates, comes in contact successively with rollers wet by a water or dampening solution and rollers wet by ink. The dampening solution wets the nonprinting areas of the plate and prevents the ink from wetting these areas. The ink wets the image areas which are transferred to the intermediate blanket cylinder. The inked image is transferred to the substrate as it passes between the blanket cylinder and the impression cylinder. Transferring the image from the plate to a rubber blanket before transfer to the substrate is called the offset principle.

One major advantage of the offset principle is that the soft rubber surface of the blanket creates a clearer impression on a wide variety of paper surfaces and other substrate materials with both rough and smooth textures with a minimum of press preparation.

Offset lithography has equipment for short, medium and long runs. Both sheetfed and web presses are used. Sheetfed lithography is used for printing advertising, books, catalogs, greeting cards, posters, labels, packaging, folding boxes, decalcomanias, coupons, trading stamps, and art reproductions. Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press. Web offset is used for printing business forms, newspapers, preprinted newspaper inserts, advertising literature, catalogs, long-run books, encyclopedias, and magazines.

In offset lithography, the rubber blanket surface conforms to irregular printing surfaces, resulting in the need for less pressure and preparation. It has improved print quality of text and halftones on rough surfaced papers. Further, the substrate does not contact the printing plate thereby increasing plate life and reducing abrasive wear. Also, the image on the plate is right for reading rather than reverse reading. Finally, less ink is required for equal coverage, drying is speeded, and smudging and setoff are reduced. Setoff is a

condition that results when wet ink on the surface of the press sheets transfers or sticks to the backs of other sheets in the delivery pile.

Thus, in summary, conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roller or a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with an aqueous damping solution which adheres only to the background areas and inked with oleo-resinous inks which adhere only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a contacting blanket cylinder and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as paper, with an impression cylinder and the ink air dries by oxidation and curing after passing through a drying station.

It is also known to provide the printing machine with a downstream coating station having a blanket roller associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to create raised or relief surface areas which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in form of pattern coatings. See U.S. Pat. No. 4,796, 556.

Lithographic inks are formulated to print from planographic surfaces which use the principle that grease and water do not mix. Lithographic inks are generally very strong in color value to compensate for the lesser amount applied. They are among the strongest of all inks. The average amount of ink transferred to the paper is about half that of letter press because of the double split of the ink film between the plate cylinder and the blanket cylinder and the blanket cylinder and the substrate on the impression cylinder.

Problems occur in the offset lithographic process when attempting to print certain colors such as white and in particular white on other colors such as yellow because the color white will be faint and not sufficiently strong. In such cases, the sheet or paper or substrate requiring the white ink usually has to be run through the same printer several times before the white becomes sufficiently strong.

Further, such colors are not generally printable in an offset lithographic printing process. This means that the sheets or substrate must be removed and transferred to a second type of machine using the flexographic process to apply greater amounts of ink in successive printing runs to achieve the desired print quality.

A like situation occurs with the printing of slurry-type materials such as "scratch-and-sniff" materials which is a liquid vehicle with a slurry containing an encapsulated essence. Such liquid vehicles, because of the nature of the slurry, must be printed with a flexographic process because the anilox roller can supply greater amounts of ink to the flexo plate on the plate cylinder.

Again, when a liquid vehicle with a slurry having suspended material therein such as metallic particles is to be printed, an offset lithographic process cannot be used without the mixing of the aqueous solution with metallic inks which cause a dulling of the image. Further, the above-mentioned double split of the ink film adds to the dulling of the image. Therefore, to achieve desired results, the printing must take place with a flexographic printing machine.

Thus, liquid opaque coatings or inks such as white colored ink, scratch-and-sniff vehicles, and slurries with metal particles do not achieve desired results when printed in an offset lithographic process and must be transferred from the offset lithographic in-line machines to a separate machine for printing in a separate run.

Such requirements not only hinder the speed of the printing process but also require additional time and thus increase the cost of the printing.

It would be advantageous to have a continuous in-line process in which not only offset lithographic printing could take place but in which, in the same in-line process, liquid printing vehicles including opaque coatings, such as white ink, and slurries containing encapsulated essences or metallic particles could also be printed and dried not only before the printing of the offset lithographic inks but also in which, after the liquid opaque coatings have been applied, an overcoating could be applied to the printed liquid vehicle image using the lithographic process in the continuous in-line process.

#### SUMMARY OF THE INVENTION

The present invention provides for a continuous in-line printing process having a plurality of successive printing stations for printing color images on a substrate. At least one of the stations prints a liquid vehicle image on a substrate with an opaque coating using the flexographic process and at least one of the successive printing stations printing a second color image over the liquid vehicle image on the printed substrate using the lithographic process in the continuous in-line process.

In the novel inventive system, a single in-line continuous printing process is used. One of the stations may print a liquid vehicle image on a substrate that contains a slurry with an encapsulated essence therein utilizing the flexographic process. Another one of the stations may apply an overcoating over the liquid vehicle image on the printed substrate using a lithographic process. Still another of the stations may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating and thereafter at least one of the successive printing stations prints a color image over the aqueous-based vehicle image using the lithographic offset process in the continuous in-line process.

Whenever a station is used for flexographic printing, a flexographic plate image is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the impression cylinder for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In addition, in such case, a high-velocity air dryer is associated with the impression cylinder of one or more of the printing stations where the printing on the substrate is occurring to assist in drying the ink or liquid vehicle printed on the substrate while it is on or near the impression cylinder, before the substrate arrives at the next successive station for additional printing, or before printing occurs at the next successive station.

Thus, if a liquid vehicle such as white ink is to be printed, it is printed with a flexographic process which deposits a greater amount of ink on the substrate, the ink is dried with a high-velocity air dryer while the substrate is on or near the impression cylinder and prior to the substrate being received by the next successive station. If desired, at the next successive station the printing of the white liquid vehicle may again take place thus ensuring the desired intensity of

whiteness on the substrate. Subsequently, at the next succeeding station a printing may take place on top of the white printing and such printing may continue at the remaining successive stations.

Thus, it is an object of the present invention to provide a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and in which some of the stations print using the flexographic process and other of the stations print utilizing the offset lithographic process.

It is also an object of the present invention to print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process at one printing station and at least one successive printing station printing a color image over the aqueous-based vehicle image using a lithographic process in a continuous in-line process or placing an overcoating over the aqueous-based vehicle image using the flexographic process and then printing at successive stations using the lithographic process.

It is yet another object of the present invention to provide a continuous in-line printing process in which one of the stations prints a liquid vehicle image on the substrate with a slurry containing an encapsulated essence using the flexographic process and at least one of the successive printing stations applies an overcoating over the liquid vehicle image on the printed substrate using the offset lithographic process in a continuous in-line process.

#### BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be more fully disclosed when taken in conjunction with the following DETAILED DESCRIPTION OF THE PRESENT INVENTION in which like numerals represent like elements and in which:

FIG. 1 is a schematic view of a prior art offset lithography printing station;

FIG. 2 is a generalized depiction of a printing station that may be used either as an offset lithographic station or a flexographic printing station and illustrates how the station may be converted from an offset lithographic station to a flexographic station; and

FIG. 3 illustrates the continuous in-line process of the present invention comprising a plurality of printing stations, each of which can be converted from an offset lithographic printing station to a flexographic printing station as well as a final coating station.

#### DETAILED DESCRIPTION OF THE PRESENT INVENTION

FIG. 1 is a schematic representation of a well-known offset lithography printing station 10 having a plate cylinder 12, a blanket cylinder 14, and an impression cylinder 16. The printing medium or substrate, such as paper 20 either in sheet form or web, is fed over the impression cylinder 16 in printing contact with the blanket cylinder 14 to receive the image and then passes over the paper transfer cylinder 18 with the image printed thereon. An inking system 26, well known in the art, transfers the ink from the ink supply to the plate cylinder 12. This is a typical offset lithography printing station.

As disclosed in U.S. Pat. No. 4,796,556, offset lithographic printing machines generally have a plurality of in-line liquid application stations at least one of which is an ink image printing station for printing lithographic ink images on to suitable receptive copy sheets. The final

downstream liquid application station is a coating application station for printing a protective and/or aesthetic coating over selected portions of or over the entire ink-image printed surface of the copy sheets and can also be used to print metallic coatings or slurry. As stated in U.S. Pat. No. 4,796,556, two liquid application stations are shown, the latter including a coating apparatus and the first station being a conventional offset image printing station. The coating application printing station is one that can be modified to convert it either permanently or intermittently to a coating station from an offset lithographic station.

Such a station is illustrated in FIG. 2 herein. The station 30 comprises a housing 32 which includes therein a plate cylinder 34 that is fed with an ink system of rollers 36 that take ink from an ink supply 38 and transfer it to the plate cylinder 34. A blanket cylinder 40 is in ink transfer relationship with the plate cylinder 34 and the impression cylinder 42 where the image is transferred to a substrate passing between blanket cylinder 40 and impression cylinder 42 as blanket cylinder 40 rotates in the direction of arrow 52. This is a conventional offset lithographic printing station. When it is desired to convert that station into a coater station, the coater apparatus 43 has a coater head 44 including a supply of liquid coating and an anilox roller 46 that can be moved such that it can be in contact with either the blanket cylinder 40 for direct printing or the plate cylinder 34 for offset printing. In this case, the ink rollers 36 for the lithographic system are removed from engagement with the plate cylinder 34 in a well-known manner. The coater unit 43 includes a motor device 45, an arm 47, and a pivotal connection 48 that connects the coater head 44 with the remainder of the assembly.

As stated previously, the offset lithographic machine of FIG. 2 is converted as shown therein to a coater that is used only in the last stage of an in-line printing process. It has not been able to be used in stages other than the last printing station because the ink that is placed on the blanket cylinder by means of an anilox roller is still wet when it arrives at the subsequent stations, thus causing smearing of the printed material and causing a general impossibility of printing other information thereon. However, applicant has modified the station shown in FIG. 2 by the addition of a high-velocity air dryer 50 that is associated with the impression cylinder 42 directly after the ink is transferred from the blanket cylinder to the substrate on the impression cylinder. Thus by using flexographic inks, or aqueous coatings which are naturally quick-drying inks, and the high-velocity air dryer 50 located at the point where the ink is applied to the substrate on the impression cylinder, the ink is sufficiently dried when it passes to the next station that further printing can take place on the printed substrate.

Thus, as shown in FIG. 3, a conventional in-line offset lithographic printing machine 52 is shown having an apparatus to feed paper into the said machine, referred to as a feeder 54, printing stations 56, 58, 60, 62, and 64, and a coating station 66. A delivery station 68 receives the printed material or substrates. Thus there are a plurality of successive printing stations 56, 58, 60, 62, and 64 for printing color images on the substrate in a continuous in-line process. Any one of the printing stations 56-64 can be modified as generally shown therein and as illustrated in FIG. 2 to print a first color image using the flexographic process. The succeeding printing stations can then print a second color image over the first color image using the lithographic process in the continuous in-line process. As illustrated in FIG. 2, the flexographic process printing station includes the blanket cylinder 40 and the impression cylinder 42. A

flexographic plate 41 on the blanket cylinder 40 has an image thereon for receiving the first color from the anilox roller 46 and transferring that first color image to the impression cylinder 42 for printing on the substrate. The high-velocity air dryer 50 thus dries the flexographic ink on the substrate and passes the substrate to the subsequent printing station. Thus in FIG. 3, station 56 may be modified as generally shown therein and as illustrated in FIG. 2 and a flexographic ink can be printed thereon at station 56, dried by the high-velocity air dryer 50, and coupled to subsequent in-line stations 58-64 for further printing a second or more color images over the first color image using the offset lithographic process in a continuous in-line process. The flexographic printing station shown in FIG. 2 may print a liquid vehicle image on the substrate with a slurry containing an encapsulated essence. At at least one of the successive printing stations 58-64 an overcoating may be applied over the liquid vehicle image on the printed substrate using the flexographic process in the continuous in-line process. The overcoating may be an aqueous overcoating, or an ultraviolet overcoating. In addition, the substrate may be a sheet or a web 20 as illustrated in FIG. 1 or it may be single sheet fed in the continuous in-line process from the stack sheets shown at 54 in FIG. 3.

Further, the modified flexographic printing station 30 shown in FIG. 2, as stated previously, may be any one of the stations 56-64 in FIG. 3, and as illustrated by stations 56 and 58, and may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating. Again, after it is dried by the high-velocity air dryer 50, it may be passed to one of the successive printing stations for printing a color image over the aqueous-based vehicle image using the offset lithographic process in the continuous in-line process. The suspended material may include uniform-sized metal particles to form the metallic coating or it may include nonuniform or multiple-sized metal particles to form the metallic coating.

The present invention is especially useful when a liquid opaque coating must be printed such as a white color ink. In that case, it may be desirable to have both stations 56 and 58 modified as shown in FIG. 3 and as illustrated in detail in FIG. 2. In such case, the anilox roller 46 at each station delivers the white ink in the same pattern to the flexographic plate 41 on the blanket cylinder 40 for transfer to the substrate on the impression cylinder 42. As the substrate passes the high-velocity drying station 50, the ink is dried and the second station may again print the same white pattern on the substrate to increase the quality of the white ink appearance after it is applied to the substrate.

Thus, the station or stations that are converted to flexographic printing stations may have an ink-providing means 46 at the printing station for applying a flexographic ink to the blanket cylinder to form the image. A substrate receives the flexographic ink image transfer from the blanket cylinder and at least one subsequent printing station in the in-line process receives the image-printed substrate and prints an additional coated ink image on the substrate on top of the flexographic ink image using offset lithography. The additional colored ink images that can be printed on top of the flexographic ink images can be conventional lithographic inks or waterless inks.

Further, the colored ink images may be printed with halftone screening processes. The flexographic ink image and the colored ink images may also be printed in solids and/or halftone printing plates in sequence and in registry in successive printing stations to produce a multicolored image on the substrate. Further, the printing apparatus may include a sheetfed press or a web press.

In the present invention, at least one of the flexographic printing stations prints an image with liquid vehicle slurry containing an encapsulated essence. In another embodiment, at least one of the printing stations prints an image with a water-based liquid vehicle containing suspended particles that are either uniform or nonuniform in size. The suspended particles may be metallic particles up to substantially 16 microns in diameter.

The present invention may also use the metallic color printing process as disclosed in commonly assigned U.S. Pat. No. 5,370,976 incorporated herein by reference in its entirety.

In one aspect, the novelty of the present invention is to create a flexographic printing station that can be used at one of a plurality of printing stations in a continuous in-line process and in which, at a subsequent printing station, a lithographic process may be used to print over the liquid vehicle printed by the flexographic station.

Thus, there has been disclosed an apparatus for a combined lithographic/flexographic printing process that includes a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and wherein one of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using the lithographic process in the continuous in-line process.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but, on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

We claim:

1. Apparatus for a combined lithographic/flexographic printing process comprising:
  - a substrate;
  - a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;
  - one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;
  - at least one of said successive printing stations being a lithographic printing station; and
  - an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.
2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.
3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.
4. Apparatus as in claim 1 wherein:
  - said substrate is a paper sheet; and
  - said apparatus includes a sheet feeder.
5. Apparatus as in claim 1 wherein:
  - said substrate is a web; and
  - said apparatus includes a web feeder.
6. Apparatus for a combined lithographic/flexographic printing process comprising:
  - a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating; a suspended metallic material being included in said aqueous-based vehicle image; and  
 at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

at least two successive ones of said printing stations being flexography stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and

at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;



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(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images on top of said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

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34. A method as in claim 29 further including the steps of: printing a slurry on said substrate at any of said printing stations in said continuous in-line process; using an encapsulated essence in said slurry; and printing an overcoating over said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

\* \* \* \* \*



MEMORANDUM

Δ π EXHIBIT 4	
Deponent	Williamson
Date	10/18/90 Rptr. JC
WWW.DEPBOOK.COM	

To: Bob Emrick  
Jim Johnson

From: Bill Davis

Date: January 26, 1995

Subject: Germany Trip, January 1995

Below, I will attempt to give you a brief outline of the highlights of our recent trip to the Heidelberg factory in Germany. The trip consisted of three phases. The first was a presentation of the new Drupa Speedmaster Press features. The second phase was a demonstration of Heidelberg's Chambered Doctor System. The third phase consisted of a meeting with a representative of BASF from Stuttgart. I met with Dr. Telser Saturday morning to discuss their plate system and its installation at our plant.

DRUPA SPEEDMASTER PRESSES

On Thursday morning, we met with Peter Schwab for the technical presentation of the features of the new Drupa Presses. We first met Peter this past summer when he gave us a presentation on the coating systems offered by Heidelberg. After a discussion about the features of the new presses, we went to the Heidelberg assembly plant at Wiesloch. After touring the factory and looking at many of the new Drupa units being built and assembled, we then adjourned to a local printer. The printer we visited was Abt Printing Company in Weinheim. Abt Printing has a new six color Drupa style speedmaster press which has been in production approximately one week. Abt also has a press just like our current six color Heidelberg CD which is approximately one year old. They stated that they are very pleased with the performance of the new Drupa press and believe it is an improvement over the older machine.

Rather than go into detail on the various improvements which were listed in Bob's memo of 10/14/94, I will try to expand on additional information about the various changes in the press.

- \* Register Control - The new register control system on the Drupa presses is very similar to the color to color register system on a web press. Specifically the Oxy Dry System on our M-200. A series of marks are printed around the cylinder. These marks are approximately 3/16th wide and six inches around the cylinder. Two sets of marks are required for an 8/C press. A scanner coming off the last impresssion cylinder reads these marks and will bring the press into registration automatically. The scanner is moved when the presets are changed for the sheet size. The only question raised about this system 'Was it possible for it to move too much causing some imperfections in register?'. The system can be tuned so it will average over ten or more sheets before it makes any moves.
- \* Impression Cylinder Wash-up - It is now possible to program the impression cylinder wash-ups to be done while the blankets and rollers are being washed.

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- \* Ink Roller Wash-up - It is now possible to add water as a second chemical in the roller wash-up system.
- \* Tower Coater Blanket Wash-up - Heidelberg now offers a Baldwin wash-up system for the tower coater blanket cylinder featuring the wiper towel system.
- \* Feeder - The feeder has a different control system on the blast and vacuum. Air blast and vacuum are speed compensated. There is also a plexiglass shield behind the feeder consol.
- \* Dampener - The new dampening system is said to be capable of running alcohol free. It has a ceramic metering roller, and a Hydrophylic pan roller. It also offers the Delta effect which allows for a 12% under-drive to remove hickies. This under-drive system can be turned off and on as needed.
- \* Impressions Cylinder Blowdown - The impressions cylinder blowdowns on the new presses offer adjustable air control.
- \* Autoplate - The new autoplate system offers the ability to rest a plate for the next job within the guards.
- \* Extension delivery - The extension delivery features a guideplate which is flooded with air. This air blanket would allow for less marking.

It is also interesting to note that Heidelberg was quite aggressive about their offering of new auxiliary systems directly. The new systems are as follows:

- \* Infrared Drying System - This new infrared dryer from Heidelberg looks like a cross between a Grafix and a Printing Research Dryer. It has the same large cabinet which sits directly beside the press delivery extension.
- \* Zone Controls for Waterless - Heidelberg offers a zone control system to control the temperature of chill water going to the ink vibrators.
- \* Dampening Solution Central Tank - Heidelberg offers a Technotrans central tank dampening solution system.

I would not be interested in any of these auxiliary systems as offered from Heidelberg because of the large amount of space they take up on the gear side of the press.

#### CHAMBERED DOCTOR SYSTEM DEMONSTRATION

Friday, Heidelberg demonstrated their Chambered Doctor System. This cartridge coating head with Anilox roller is mounted on the tower coater of a five color CD press with extension. The Anilox roller they used was a 300 line screen roller.

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Also in attendance at the test was Michael Yates and Steve Clark of Wolstenholme. When the test began, it was determined that the coatings which Wolstenholme had sent to Germany would not work. So we did the test on coatings provided to Heidelberg by Eckart.

The test went pretty well considering that Heidelberg had failed to make a silver relief plate for the No. 2 form with the Rolex watches.

BASF RELIEF PLATE

On Saturday morning, I met for about two hours with Dr. Thomas Telser of BASF Printing Plate Systems in Stuttgart. Dr. Telser brought information regarding several of BASF's relief plate systems. We discussed at length the LW and LWA plates which we have previously tested made by BASF. One point to note was that to do flexographic printing, the LW and LWA plates would not be adequate. Dr. Telser recommended an LA plate, which is totally water developed but could be processed in the LW system. This plate would work best for UV coatings also.

We need to discuss at length, much of the details of the press demonstrations, the chambered doctor system test and the BASF plate systems. I have photographs, a video and samples I would like to share with both of you when time permits. Please let me know so that we might meet and discuss the various topics mentioned above.

Thank you,

Bill Davis

cc: Jerry Williamson  
Jesse Williamson

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THE END OF THE LINE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:

**BILL L. DAVIS and JESSE S. WILLIAMSON**

For Reissue of U. S. Patent 5,630,363  
Issued May 20, 1997  
Serial No. 08/515,097

Filing Date: May 20, 1999

Serial No. \_\_\_\_\_

For: **COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING  
APPARATUS AND PROCESS**

Group Art Unit: \_\_\_\_\_

Examiner: \_\_\_\_\_

**REISSUE DECLARATION**

TO: The Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

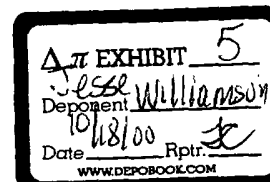
SIR:

Petitioners, (1) Bill L. Davis, of 1126 Tipton Road, Irving, Texas 75067; and (2) Jesse S. Williamson, of 5738 Caruth, Dallas, Texas 75209, declare that.

1. We verily believe ourselves to be the original, first and sole inventors of the invention described and claimed, and of the discovery described, in U.S. Patent 5,630,363 and in the specification thereof, and for which invention and discovery we solicit a reissue patent.

2. Petitioners verily believe that, because of what might be deemed errors in the specification and claims of U.S. Patent 5,630,363, that said '363 patent might be inoperative or invalid (a) by reason of Petitioners claiming in some instances more, and in some instances less, than they had a right to claim in the '363 patent, or (b) for the reason that the '363 claims might be interpreted as failing to particularly point out and distinctly claim the subject matter which the undersigned Petitioners regard as their invention. There also exists certain errors in the

REISSUE DECLARATION



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REISSUE DECLARATION

specification including, but not limited to, minor stenographical errors. Petitioners declare that all of these errors sought to be corrected arose through their unfamiliarity with U. S. patent practice, and or through inadvertence, and were all without any deceptive intention. Petitioners seek to correct these errors through amendments to their specification and claims, and endorse the amendments set forth in Exhibit "A" hereto.

3. Petitioners are informed that under 37 C.F.R. § 1.56(a) that a duty of candor and good faith toward the United States Patent and Trademark Office ("Office") rests on the inventors, on each attorney or agent who prepares or prosecutes the application and on every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application. Reissue petitioners are now further aware that all such individuals have a duty to disclose to the Office information that each is aware of which is material to the examination of the application and that such information is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. Reissue petitioners further understand that the duty is commensurate with a degree of involvement in the preparation or prosecution of the application. Reissue petitioners are now informed that the duty of disclosure may extend to their own activities prior to the filing date of the application leading to the '363 patent.

4. Petitioners further declare that their '363 patent specification teaches a combined lithographic/flexographic process having a plurality of successive printing stations for depositing a series of thin, controlled layers of ink or coatings, including, but not limited to, printing color images, on one or both sides of a substrate in a continuous in-line process. In one embodiment of the method of their invention, one of the stations prints a first color image using the flexographic process, and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process. Consistent with the teachings in their specification at col. 2, lines 49-58, reissue





than the claim it depends on. Such errors render claim 29 partially inoperable, and claim 34 potentially invalid. Such errors were inadvertent, and occurred without deceptive intent, for which reissue applications seek correction.

7 Third, Petitioners are concerned that certain of their claims, e.g., claim 1, may be misunderstood as limiting the interpretation of the term "image" to ink, and worse yet, a color ink. Consistent with the specification, e.g., col. 1, lines 18-25; col. 4, lines 12-13, col. 6, lines 46-47, newly presented claims 44-84 require that surfaces at each station be deposited with layers of ink or coating materials so that any ambiguity is avoided.

8 Stenographic errors occurred in the original patent in the spelling of "Pantone" under "Other Publications" listed as prior art, and of the spelling of "flexographic" at col. 1, line 20. Both errors occurred inadvertently and without deceptive intent.

9 With respect to each of claims 1-41, as amended, and new claims 42-84, we declare that we believe we are the original first and joint inventors of the subject matter therein claimed and for which a reissue patent is sought on the invention set forth in the attached specification entitled COMBINED LITHOGRAPHIC FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS, a copy of which amended specification is attached hereto as Exhibit "A". We hereto state that we have reviewed and understand the contents of this amended specification, including the amended and new claims. As indicated above, we acknowledge our duty to disclose any and all information which is material to examination of this reissue patent application in accordance with 37 C.F.R. §1.56(a). We further declare that we do not know and do not believe that said invention was ever known or ever used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof, or patented or described in any printed publication more than one year before the filing date of the first application leading to the '363 patent; or in public use or on sale in the United States of America more than one year prior to the date of the first application leading to the '363 patent; further, that said invention has not been patented or made the subject to any inventor's certificate issued before the filing date of the first application.

REISSUE DECLARATION


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leading to the '363 patent in any country foreign to the United States of America on any application filed by me or our legal representative or assigns more than twelve (12) months prior to the filing date of said first patent application in the United States of America, and has not been abandoned.

The undersigned Petitioners declare further that all statements made herein of Petitioners' own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application of any reissue patent issuing thereon.

  
Bill L. Davis

  
Jesse S. Williamson

Date: May 20, 1999

PATENT  
Our File WILL 2501.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of

BILL L. DAVIS and JESSE S. WILLIAMSON

For Reissue of U. S. Patent 5,630,363

Issued May 20, 1997

Serial No. 08/515,097

Filing Date: May 20, 1999

Serial No

For

COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING  
APPARATUS AND PROCESS

Group Art Unit \_\_\_\_\_

Examiner \_\_\_\_\_

- [31] Int. Cl.<sup>4</sup> \_\_\_\_\_ B41M 1/18; B41M 7/00;  
B41M 1/04; B41P 23/00  
[32] U.S. Cl. \_\_\_\_\_ 101/141; 101/181; 101/183;  
101/424.1; 101/424.2; 101/479; 101/483;  
101/491; 101/DIG. 49  
[38] Field of Search \_\_\_\_\_ 101/135-138,  
101/141-143, 450.1, 174, 180, 181, 183,  
416.1, 424.1, 424.2, 479, 491, DIG. 29,  
DIG. 49, 483

[36] References Cited		
U.S. PATENT DOCUMENTS		
2,499,670	3/1950	Leach _____ 101/138
2,988,989	6/1961	Crawford _____ 101/152
3,072,050	1/1963	Wolf _____ 101/DIG. 49
4,011,812	3/1977	Leach _____ 101/176
4,056,056	11/1977	Gind _____ 101/152
4,180,407	12/1979	Gibson et al. _____ 106/26
4,186,661	2/1980	Voss _____ 101/178
4,373,442	2/1983	Deligdis et al. _____ 101/207
4,373,443	2/1983	Martin et al. _____ 101/221
4,417,516	1/1983	Flacher _____ 101/181
4,421,027	12/1983	Flacher _____ 101/142
4,437,402	3/1984	Flacher _____ 101/181
4,610,201	9/1986	Jenchals _____ 101/DIG. 49
4,729,909	3/1988	Noack _____ 427/283
4,758,886	7/1988	Rylander _____ 358/80
4,796,356	1/1989	Bird _____ 118/46
4,989,079	1/1991	Ito _____ 358/80
4,989,080	1/1991	Ito _____ 358/80
5,144,419	9/1992	Nakatsuka et al. _____ 358/75
5,178,678	1/1993	Koshlar et al. _____ 118/46
5,184,356	2/1993	Schaeble _____ 101/483
5,370,976	12/1994	Williamson et al. _____ 430/258

OTHER PUBLICATIONS

"[Pontone®] Pantone® Metallic Integrated Process Color Selector, Pantone Metallic-Bondtrack-Portfolio", The Pantone Library of Color, 201 Pantone, Inc. 1990, pp. MEFF VI-VIII.

Primary Examiner—Stephen R. Peak  
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

[37] ABSTRACT

A combined lithographic/flexographic printing process having a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process. One of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process.

41 Claims, 1 Drawing Sheet

EXHIBIT

A

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1  
COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING APPARATUS  
AND PROCESS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates in general to printing machines and processes and in particular to a combined lithographic/flexographic in-line printing apparatus and process.

2. Description of Related Art

As used herein, the following terms have the meanings indicated:

**ANILOX ROLLER**

A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In [flexo] flexographic presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remountable glass units and to create "scratch-and-sniff" perfumes etc.

**ANILOX SYSTEM**

The inking method commonly employed on flexographic presses. An elastomer-covered fountain roller supplies a controlled ink film from the ink pan to the engraved metering roller. After ink floods the metering roller, the fountain roller is squeezed or wiped usually with a doctor blade to remove the excess ink. The ink that remains on the metering roller is then transferred to the rubber printing plate.

**COATER**

A device with a pan to contain the coating material, a pan roller partially immersed in the coating material contained in the pan, and a coater roller to meter off a uniform film of the coating material and apply it to the printing plate.

**COATING**

An unbroken, clear film applied to a substrate in layers to protect and seal it, or to make it glossy.

**FLEXOGRAPHIC INK**

A quick-drying, fluid ink that is highly volatile or an ink that can be water based and nonvolatile.

**FLEXOGRAPHY**

A method of rotary letterpress printing characterized by the use of flexible, rubber, or plastic plates with raised image areas and fluid, rapid-drying inks.

**HALFTONES**

Dot-pattern images that have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion; small halftone dots, when viewed at the normal reading distance, cannot be resolved as individual dots but blend into a continuous tone.

**LITHOGRAPHIC PLATES**

A lithographic plate is precoated with a light-sensitive or otherwise imageable coating, and the separation between the image and nonimage areas is maintained chemically. The image areas must be ink receptive and refuse water and the nonimage areas must be water receptive and refuse ink. The wider the difference maintained between the ink receptivity of the image areas and the water receptivity of the nonimage areas, the better the plate will be, the easier it will run on the press, and, consequently, the better the printing. There are several types of lithographic plates. The plate is an image carrier that is said to be planographic, or flat and smooth.

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## LITHOGRAPHY

A printing process in which the image carrier or plate is chemically treated so that the image areas are receptive to ink.

## 1 OFFSET PRINTING

An indirect printing method in which the inked image on a press plate is first transferred to a rubber blanket, that in turn "offsets" the inked impression to a press sheet. In offset lithography, the printing plate has been photochemically treated to produce image areas receptive to ink.

## 10 SLURRY

A water suspension of fibers or the suspension of pigment and adhesive used to coat papers. It may also include a suspended metallic material such as uniform-sized metal particles or nonuniform-sized metal particles.

## 15 ULTRAVIOLET INKS

Printing inks containing an activator that causes the polymerization of binders and solvents after exposure to a source of ultraviolet radiation.

20 Offset lithography is a process that is well known in the art and utilizes the planographic method. This means that the image and nonprinting areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. There are two basic differences between offset lithography and other processes. First, it is based on the principle that grease and water do not mix. Second, the ink is offset from the first plate to a rubber blanket and then from the blanket to a substrate on which printing is to occur such as paper.

30 When the printing plate is made, the printing image is made grease receptive and water repellent and the nonprinting areas are made water receptive and ink repellent. The plate is mounted on the plate cylinder of the press which, as it rotates, comes in contact successively with rollers wet by a water or dampening solution and rollers wet by ink. The dampening solution wets the nonprinting areas of the plate and prevents the ink from wetting these areas. The ink wets the image areas which are transferred to the intermediate blanket cylinder. The inked image is transferred to the substrate as it passes between the blanket cylinder and the impression cylinder. Transferring the image from the plate to a rubber blanket before transfer to the substrate is called the offset principle.

45 One major advantage of the offset principle is that the soft rubber surface of the blanket creates a clearer impression on a wide variety of paper surfaces and other substrate materials with both rough and smooth textures with a minimum of press preparation.

50 Offset lithography has equipment for short, medium and long runs. Both sheetfed and web presses are used. Sheetfed lithography is used for printing advertising, books, catalogs, greeting cards, posters, labels, packaging, folding boxes, decalcomanias, coupons, trading stamps, and art reproductions. Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press. Web offset is used for printing business forms, newspapers, preprinted newspaper inserts, advertising literature, catalogs, long-run books, encyclopedias, and magazines.

60 In offset lithography, the rubber blanket surface conforms to irregular printing surfaces, resulting in the need for less pressure and preparation. It has improved print quality of text and halftones on rough surfaced papers. Further, the substrate does not contact the printing plate thereby increasing plate life and reducing abrasive wear. Also, the image on the plate is right for reading rather than reverse reading. Finally, less ink is required for equal coverage, drying is speeded, and smudging and setoff are reduced. Setoff is a

condition that results when wet ink on the surface of the press sheets transfers or sticks to the backs of other sheets in the delivery pile.

Thus, in summary, conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roller or a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with an aqueous damping solution which adheres only to the background areas and inked with oleo-resinous ink which adheres only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a connecting blanket cylinder and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as paper, with an impression cylinder and the ink air dries by oxidation and curing after passing through a drying station.

It is also known to provide the printing machines with a downstream coating station having a blanket roller associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to create raised or relief surface areas which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in form of pattern coatings. See U.S. Pat. No. 4,796,556.

Lithographic inks are formulated to print from planographic surfaces which use the principle that grease and water do not mix. Lithographic inks are generally very strong in color value to compensate for the lesser amount applied. They are among the strongest of all inks. The average amount of ink transferred to the paper is about half that of letter press because of the double split of the ink film between the plate cylinder and the blanket cylinder and the blanket cylinder and the substrate on the impression cylinder.

Problems occur in the offset lithographic process when attempting to print certain colors such as white and in particular white or other colors such as yellow because the color white will be faint and not sufficiently strong. In such cases, the sheet or paper or substrate requiring the white ink usually has to be run through the same printer several times before the white becomes sufficiently strong.

Further, such colors are not generally printable in an offset lithographic printing process. This means that the sheets or substrate must be removed and transferred to a second type of machine using the flexographic process to apply greater amounts of ink in successive printing runs to achieve the desired print quality.

A like situation occurs with the printing of slurry-type materials such as "scratch-and-sniff" materials which is a liquid vehicle with a slurry containing an encapsulated essence. Such liquid vehicles, because of the nature of the slurry, must be printed with a flexographic process because the anilox roller can supply greater amounts of ink to the flexo plate on the plate cylinder.

Again, when a liquid vehicle with a slurry having suspended material therein such as metallic particles is to be printed, an offset lithographic process cannot be used without the mixing of the aqueous solution with metallic inks which causes a dulling of the image. Further, the above-mentioned double split of the ink film adds to the dulling of the image. Therefore, to achieve desired results, the printing must take place with a flexographic printing machine.

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Thus, liquid opaque coatings or inks such as white colored ink, scratch-and-stuff vehicles, and slurries with metal particles do not achieve desired results when printed in an offset lithographic process and must be transferred from the offset lithographic in-line machines to a separate machine for printing in a separate run.

Such requirements not only hinder the speed of the printing process but also require additional time and thus increase the cost of the printing.

10 It would be advantageous to have a continuous in-line process in which not only offset lithographic printing could take place but in which, in the same in-line process, liquid printing vehicles including opaque coatings, such as white ink, and slurries containing encapsulated essences or metallic particles could also be printed and dried not only before the printing of the offset lithographic inks but also in which, after the liquid opaque coatings have been applied, an overcoating could be applied to the printed liquid vehicle image using the lithographic process in the continuous  
20 in-line process.

#### SUMMARY OF THE INVENTION

The present invention provides for a continuous in-line printing process having a plurality of successive printing stations for printing color images on a substrate. At least one of the stations prints a liquid vehicle image on a substrate with an opaque coating using the flexographic process and at least one of the successive printing stations printing a second color image over the liquid vehicle image on the printed substrate using the lithographic process in the continuous in-line process.

In the novel inventive system, a single in-line continuous printing process is used. One of the stations may print a liquid vehicle image on a substrate that contains a slurry with an encapsulated essence therein utilizing the flexographic process. Another one of the stations may apply an overcoating over the liquid vehicle image on the printed substrate using a lithographic process. Still another of the stations may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating and thereafter at least one of the successive printing stations prints a color image over the aqueous-based vehicle image using the lithographic offset process in the continuous in-line process.

45 Whenever a station is used for flexographic printing, a flexographic plate image is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the impression cylinder for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In addition, in such case, a high-velocity air dryer is associated with the impression cylinder of one or more of the printing stations where the printing on the substrate is occurring to assist in drying the ink or liquid vehicle printed on the substrate while it is on or near the impression cylinder, before the substrate arrives at the next successive station for additional printing, or before printing occurs at the next successive station.

50 Thus, if a liquid vehicle such as white ink is to be printed, it is printed with a flexographic process which deposits a greater amount of ink on the substrate, the ink is dried with a high-velocity air dryer while the substrate is on or near the impression cylinder and prior to the substrate being received by the next successive station. If desired, at the next successive station the printing of the white liquid vehicle may again take place thus ensuring the desired intensity of



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whiteness on the substrate. Subsequently, at the next succeeding station a printing may take place on top of the white printing and such printing may continue at the remaining successive stations.

Thus, it is an object of the present invention to provide a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and in which some of the stations print using the flexographic process and other of the stations print utilizing the offset lithographic process.

It is also an object of the present invention to print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process at one printing station and at least one successive printing station printing a color image over the aqueous-based vehicle image using a lithographic process in a continuous in-line process or placing an overcoating over the aqueous-based vehicle image using the flexographic process and then printing at successive stations using the lithographic process.

It is yet another object of the present invention to provide a continuous in-line printing process in which one of the stations prints a liquid vehicle image on the substrate with a slurry containing an encapsulated essence using the flexographic process and at least one of the successive printing stations applies an overcoating over the liquid vehicle image on the printed substrate using the offset lithographic process in a continuous in-line process.

#### BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be more fully disclosed when taken in conjunction with the following DETAILED DESCRIPTION OF THE PRESENT INVENTION in which like numerals represent like elements and in which:

FIG. 1 is a schematic view of a prior art offset lithography printing station;

FIG. 2 is a generalized depiction of a printing station that may be used either as an offset lithographic station or a flexographic printing station and illustrates how the station may be converted from an offset lithographic station to a flexographic station; and

FIG. 3 illustrates the continuous in-line process of the present invention comprising a plurality of printing stations, each of which can be converted from an offset lithographic printing station to a flexographic printing station as well as a final coating station.

#### DETAILED DESCRIPTION OF THE PRESENT INVENTION

FIG. 1 is a schematic representation of a well-known offset lithography printing station 10 having a plate cylinder 12, a blanket cylinder 14, and an impression cylinder 16. The printing medium or substrate, such as paper 20 either in sheet form or web, is fed over the impression cylinder 16 in printing contact with the blanket cylinder 14 to receive the image and then passes over the paper transfer cylinder 18 with the image printed thereon. An ink system 24, well known in the art, transfers the ink from the ink supply to the plate cylinder 12. This is a typical offset lithography printing station.

As disclosed in U.S. Pat. No. 4,796,556, offset lithographic printing machines generally have a plurality of in-line liquid application stations at least one of which is an ink image printing station for printing lithographic ink images on to suitable receptive copy sheets. The final

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downstream liquid application station is a coating application station for printing a protective and/or aesthetic coating over selected portions of or over the entire ink-image printed surface of the copy sheets and can also be used to print metallic coatings or slurry. As stated in U.S. Pat. No. 4,796,556, two liquid application stations are shown, the latter including a coating apparatus and the first station being a conventional offset image printing station. The coating application printing station is one that can be modified to convert it either permanently or intermittently to a coating station from an offset lithographic station.

Such a station is illustrated in FIG. 2 herein. The station 30 comprises a housing 32 which includes therein a plate cylinder 34 that is fed with an ink system of rollers 36 that takes ink from an ink supply 38 and transfer it to the plate cylinder 34. A blanket cylinder 40 is in ink transfer relationship with the plate cylinder 34 and the impression cylinder 42 where the image is transferred to a substrate passing between blanket cylinder 40 and impression cylinder 42 as blanket cylinder 40 rotates in the direction of arrow 52. This is a conventional offset lithographic printing station. When it is desired to convert that station into a coater station, the coater apparatus 43 has a coater head 44 including a supply of liquid coating and an anilox roller 46 that can be moved such that it can be in contact with either the blanket cylinder 40 for direct printing or the plate cylinder 34 for offset printing. In this case, the ink rollers 36 for the lithographic system are removed from engagement with the plate cylinder 34 in a well-known manner. The coater unit 43 includes a motor device 45, an arm 47, and a pivotal connection 48 that connects the coater head 44 with the remainder of the assembly.

As stated previously, the offset lithographic machine of FIG. 2 is converted as shown therein to a coater that is used only in the last stage of an in-line printing process. It has not been able to be used in stages other than the last printing station because the ink that is placed on the blanket cylinder by means of an anilox roller is still wet when it arrives at the subsequent stations, thus causing smearing of the printed material and causing a general impossibility of printing other information thereon. However, applicant has modified the station shown in FIG. 2 by the addition of a high-velocity air dryer 50 that is associated with the impression cylinder 42 directly after the ink is transferred from the blanket cylinder to the substrate on the impression cylinder. Thus by using flexographic inks, or aqueous coatings which are normally quick-drying inks, and the high-velocity air dryer 50 located at the point where the ink is applied to the substrate on the impression cylinder, the ink is sufficiently dried when it passes to the next station that further printing can take place on the printed substrate.

Thus, as shown in FIG. 3, a conventional in-line offset lithographic printing machine 52 is shown having as apparatus to feed paper into the said machine, referred to as a feeder 54, printing stations 56, 58, 60, 62, and 64 and a coating station 66. A delivery station 68 receives the printed material or substrates. Thus there are a plurality of successive printing stations 56, 58, 60, 62, and 64 for printing color images on the substrate in a continuous in-line process. Any one of the printing stations 56-64 can be modified as generally shown therein and as illustrated in FIG. 3 to print a first color image using the flexographic process. The succeeding printing stations can then print a second color image over the first color image using the lithographic process in the continuous in-line process. As illustrated in FIG. 2, the flexographic process printing station includes the blanket cylinder 40 and the impression cylinder 42. A

flexographic plate 41 on the blanket cylinder 40 has an image thereon for receiving the first color from the anilox roller 46 and transferring that first color image to the impression cylinder 42 for printing on the substrate. The high-velocity air dryer 50 thus dries the flexographic ink on the substrate and passes the substrate to the subsequent printing station. Thus in FIG. 3, station 56 may be modified as generally shown therein and as illustrated in FIG. 2 and a flexographic ink can be printed thereon at station 56, dried by the high-velocity air dryer 50, and coupled to subsequent in-line stations 58-64 for further printing a second or more color images over the first color image using the offset lithographic process in a continuous in-line process. The flexographic printing station shown in FIG. 2 may print a liquid vehicle image on the substrate with a slurry containing an encapsulated essence. At least one of the successive printing stations 58-64 an overcoating may be applied over the liquid vehicle image on the printed substrate using the flexographic process in the continuous in-line process. The overcoating may be an aqueous overcoating, or an ultraviolet overcoating. In addition, the substrate may be a sheet or a web 20 as illustrated in FIG. 1 or it may be single sheet fed in the continuous in-line process from the stack sheets shown at 54 in FIG. 3.

Further, the modified flexographic printing station 30 shown in FIG. 2, as stated previously, may be any one of the stations 56-64 in FIG. 3, and as illustrated by stations 56 and 58, and may print an aqueous-based vehicle image including a suspended metallic material thereon using the flexographic process to form a metallic coating. Again, after it is dried by the high-velocity air dryer 50, it may be passed to one of the successive printing stations for printing a color image over the aqueous-based vehicle image using the offset lithographic process in the continuous in-line process. The suspended material may include uniform-sized metal particles to form the metallic coating or it may include nonuniform or multiple-sized metal particles to form the metallic coating.

The present invention is especially useful when a liquid opaque coating must be printed such as a white color ink. In that case, it may be desirable to have both stations 56 and 58 modified as shown in FIG. 3 and as illustrated in detail in FIG. 2. In such case, the anilox roller 46 at each station delivers the white ink in the same pattern to the flexographic plate 41 on the blanket cylinder 40 for transfer to the substrate on the impression cylinder 42. As the substrate passes the high-velocity drying station 50, the ink is dried and the second station may again print the same white pattern on the substrate to increase the quality of the white ink appearance after it is applied to the substrate.

Thus, the station or stations that are converted to flexographic printing stations may have an ink-providing means 46 at the printing station for applying a flexographic ink to the blanket cylinder to form the image. A substrate receives the flexographic ink image transfer from the blanket cylinder and at least one subsequent printing station in the in-line process receives the image-printed substrate and prints an additional coated ink image on the substrate on top of the flexographic ink image using offset lithography. The additional colored ink images that can be printed on top of the flexographic ink images can be conventional lithographic inks or waterless inks.

Further, the colored ink images may be printed with halftone screening processes. The flexographic ink image and the colored ink images may also be printed in solids and/or halftone printing plates in sequence and in registry in successive printing stations to produce a multicolored image on the substrate. Further, the printing apparatus may include a sheetfed press or a web press.

The present invention may also use the metallic color printing process as disclosed in commonly assigned U.S. Pat. No. 5,370,976 incorporated herein by reference in its entirety.

Thus, there has been disclosed an apparatus for a combined lithographic/xerographic printing process that includes a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and wherein one of the stations prints a first color image using the xerographic process and at least one of the successive printing stations prints a second color image over the first color image using the lithographic process in the continuous in-line process.

35 We claim:  
1. Apparatus for a combined lithographic/flexographic printing process comprising:

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one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;  
a suspended metallic material being included in said aqueous-based vehicle image; and  
at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including: said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

at least two successive ones of said printing stations being flexography stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

- 3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
- 5 (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and
- 10 at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.
13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.
14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.
15. Apparatus for a combined lithographic/flexographic printing process comprising:
- 15 a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
- a blanket cylinder at at least a first one of said flexographic printing stations;
- 20 flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;
- 25 a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and
- at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.
- 30 16. Apparatus as in claim 15 further comprising:
- a plate cylinder at said at least first one of said flexographic stations;
- 45 a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and
- said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.
- 35 17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:
- 50 a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
- at least one of said flexographic printing stations having:
- 60 (1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;
- 65 (2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images on top of said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

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34. A method as in claim 29 further including the steps of:  
printing a slurry on said substrate at any of said printing  
stations in said continuous in-line process;  
using an encapsulated essence in said slurry; and  
printing an overcoating over said slurry at a subsequent  
printing station in said in-line process to protect said  
essence.
35. A method as in claim 34 further including the step of  
printing an aqueous-based coating over said slurry.
36. A method as in claim 34 further including the step of  
printing an ultraviolet coating over said slurry.
37. A method of combining offset lithography and flexo-  
graphic printing in a continuous in-line process comprising  
the steps of:  
providing a substrate;  
applying a flexographic ink to a blanket cylinder in a  
pattern with a coating head at a first flexographic  
printing station;  
transferring said pattern of flexographic ink from said  
blanket cylinder to the substrate; and  
printing a waxless ink pattern over said flexographic ink  
pattern on said substrate at at least one subsequent  
offset lithographic printing station in said continuous  
in-line process.
38. A method of combining lithography and flexographic  
printing in a continuous in-line process comprising the steps  
of:  
printing an aqueous-based vehicle image having sus-  
pended particles therein on a substrate at a first flexo-  
graphic printing station;  
transferring said image printed substrate to at least one  
additional printing station in said continuous in-line  
process; and  
printing additional colored ink images on said printed  
substrate over said aqueous-based vehicle image in an  
offset lithographic process at said at least one additional  
printing station in said in-line process.
39. A method of combining lithography and flexographic  
printing in a continuous in-line process comprising the steps  
of:  
(1) providing a plurality of successive printing stations for  
printing liquid vehicle images on a substrate in said  
in-line continuous process;  
(2) utilizing an anilox roller to transfer a liquid ink as said  
liquid vehicle to a flexographic plate image at at least  
one of said printing stations;  
(3) printing said liquid ink from said flexographic plate  
image to a substrate;  
(4) transferring said printed substrate with said liquid ink  
image to a subsequent printing station in said in-line  
printing process;  
(5) repeating steps (2)-(4) at subsequent printing stations  
in said in-line process to achieve a desired opacity ink  
image on said substrate; and  
(6) printing an ink pattern over said flexographic ink  
image using an offset lithographic process.
40. A method as in claim 39 further including the step of  
additionally printing colored ink images over said liquid ink  
image on said substrate at subsequent ones of said printing  
stations in said in-line process.
41. A method as in claim 40 wherein said liquid ink is an  
opaque white color.

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Reissue of U. S. Patent No. 5,630,363

**CLAIMS**

**Note: Bracketed material in the following claims has been deleted from U. S. Patent 5,630,363 as issued; underlined materials, including new claims 42-84 has been added.**

1. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;

at least one of said successive printing stations being a lithographic printing station; and

an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.

3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.

4. Apparatus as in claim 1 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder

5. Apparatus as in claim 1 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;

a suspended metallic material being included in said aqueous-based vehicle image; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression

cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

at least two successive ones of said printing stations being flexography stations and comprising:

- (1) a supply of liquid coating;
- (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;
- (3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
- (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and

at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations,

flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an

image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

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24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images [on top of] over said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

34. A method as in claim 29 further including the steps of:

printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating [over] on top of said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and



printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

42. The apparatus of any of claims 1, 6, 10, 12, 15 and 17, wherein the substrate is printed on both sides in one pass during the continuous in-line process.

43. The method of any of claims 29, 37, 38 or 39 wherein the substrate is printed on both sides in one pass during the continuous in-line process.

44. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on one side of a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate using a flexographic process; and

at least one of said successive printing stations being a lithographic printing station;

whereby said substrate is printed on top of or on the opposite side of that previously printed at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

45. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at the flexographic station is a coating material.

46. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at one of the lithographic stations is an ink.

47. Apparatus as in claim 44 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

48. Apparatus as in claim 44 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

49. The apparatus of claim 44 for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle on one side of the substrate using the flexographic process to form a metallic coating image;

a suspended metallic material being included in said aqueous-based vehicle; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image on top of the aqueous-based vehicle or on the opposite side to that previously printed using the offset lithographic process in said continuous in-line process.

50. Apparatus as in claim 49 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

51. Apparatus as in claim 49 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

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an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process:

at least one of the other successive printing stations comprising an offset lithographic printing station for printing a second color image on the reverse side of the substrate of the first color image using the offset lithographic process in said continuous in-line process.

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

55. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

at least one of said printing stations being flexographic stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on one side of said substrate; and

at least one offset lithographic printing station for receiving said substrate and printing on top of or on the opposite side to that previously printed.

56. Apparatus as in claim 55 wherein said liquid coating image printed on said substrate is a white color ink.

57. Apparatus as in claim 56 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

58 Apparatus for a combined lithographic/  
flexographic printing process comprising

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and at least two flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at the other of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image on one side of a substrate;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image or the opposite side to that previously printed using offset lithography.

**59. Apparatus as in claim 58 further comprising:**

a plate cylinder at said at least first one of said flexographic stations:

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

60. Apparatus for a combined lithographic/ flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to one side of said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image or on the opposite side to that that previously printed.

61. Apparatus as in claim 60 wherein said additional colored ink images are formed with lithographic inks.

62. Apparatus as in claim 60 wherein said colored ink images are formed with waterless inks.

63. Apparatus as in claim 60 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

64. Apparatus as in claim 60 further including halftone printing plates for printing said colored ink images.

65. Apparatus as in claim 60 wherein said flexographic ink image and said colored ink images are printed as solid colors and or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

66. Apparatus as in claim 60 wherein said printing apparatus includes a sheet-fed press.

67. Apparatus as in claim 60 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

68. Apparatus as in claim 60 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

69. Apparatus as in claim 68 wherein said suspended particles are uniform in size.

70. Apparatus as in claim 68 wherein said suspended particles are nonuniform in size.

71. Apparatus as in claim 68 wherein said suspended particles are metallic particles.

72. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for depositing a series of thin, controlled layers on a substrate;

printing an image as one of said thin controlled layers on one side of said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and



printing an image on the reverse side of said substrate having said flexographic ink image, at at least one of said other subsequent lithographic printing stations with an offset lithographic process in the continuous in-line process.

73. A method as in claim 72 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

74. A method as in claim 72 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

75. A method as in claim 72 wherein said colored inks forming said colored ink images are waterless.

76. A method as in claim 72 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

77. A method as in claim 72 further including the steps of:

printing a slurry on one side of said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an ink on the reverse side of said substrate at a subsequent printing station in said in-line process.

78. A method as in claim 77 further including the step of printing an aqueous-based coating over said slurry.

79. A method as in claim 77 further including the step of printing an ultraviolet coating over said slurry.

80. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying an ink or coating to a blanket cylinder in a pattern with a coating head at a flexographic printing station;

transferring said pattern of ink or coating from said blanket cylinder to one side of the substrate; and

printing a waterless ink pattern on the reverse side of said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

81. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle having suspended particles therein on one side of a substrate at a flexographic printing station to form an image;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional images on the reverse side of said printed substrate in an offset lithographic process at said at least one additional printing station in said in-line process.

82. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as one of said thin controlled layers to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to one side of a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process.

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on the one side of said substrate; and

(6) printing an ink pattern on the reverse side of said substrate using an offset lithographic process.

83. A method as in claim 82 further including the step of additionally printing ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

84. A method as in claim 83 wherein said liquid ink is an opaque white color.

85. A method of combining offset lithography and flexography using a plurality of successive printing stations in a continuous in-line process comprising:

(1) printing an image at one or more of said printing stations on a substrate using an offset lithographic process;

(2) transferring said image printed substrate to an additional printing station and printing at said additional printing station a coating on all or part of said image on said substrate;

(3) transferring said substrate to one or more additional printing stations for printing the reverse side of the said substrate; and

(4) printing an image on said reverse side of said substrate at one of such one or more printing stations using an offset lithographic process in the continuous in-line process.

86. Apparatus for a combined offset lithographic and flexographic printing process comprising:

(1) a substrate;

(2) a plurality of successive printing stations for depositing a series of thin layers of materials selected from a group consisting of lithographic and flexographic inks, coatings and slurries on one or both sides of a substrate in a continuous in-line process;

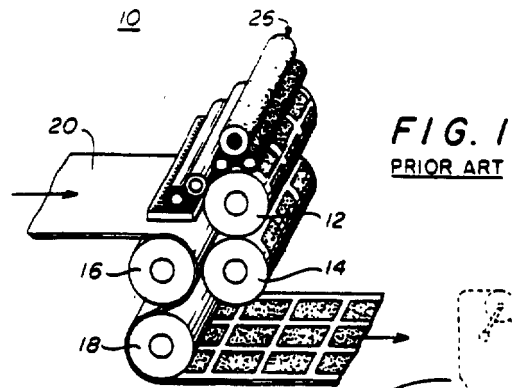
(3) at least one of said stations comprising a flexographic printing station for printing one of said flexographic materials on said substrate using a flexographic process;

(4) at least one of said successive printing stations being an offset lithographic printing station whereby said offset lithographic printing station is used to deposit one of said lithographic materials on either side of the said substrate in the continuous in-line process;

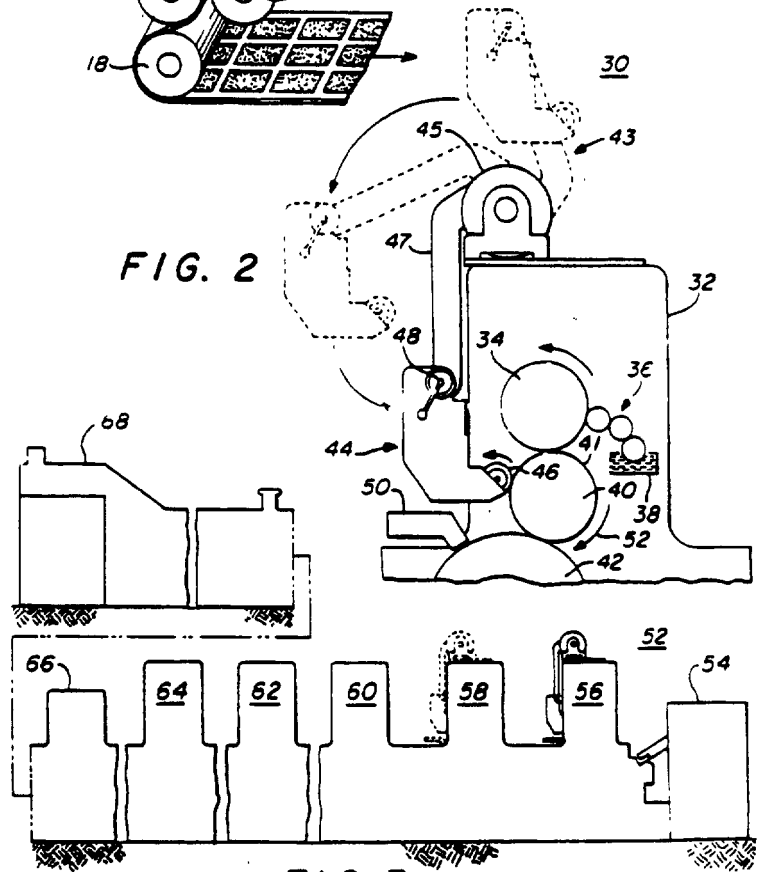
87. Apparatus for a combined offset lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing images on a substrate in a continuous in-line process, said printing stations including both offset lithographic and flexographic printing stations for depositing lithographic and flexographic inks, coatings and slurries on said substrate, whereby said lithographic and flexographic inks, coatings or slurries may be printed successively on one or both sides of said substrate in the continuous in-line process.

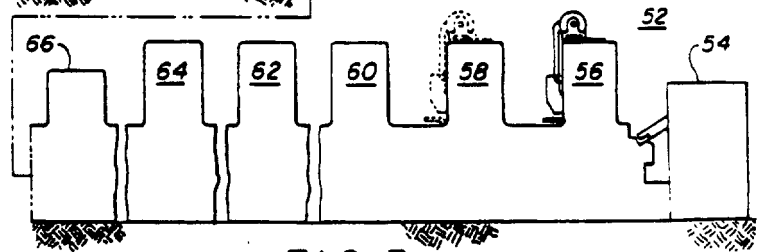
Top Secret



**FIG. 2**



**FIG. 3**



THESE

6

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:

**BILL L. DAVIS and JESSE S. WILLIAMSON**

For Reissue of U. S. Patent 5,630,363

Issued May 20, 1997

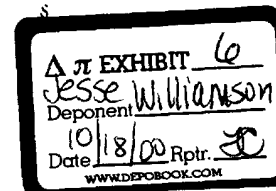
Serial No. 08/515,097

Filing May 20, 1999

Group Art Unit: \_\_\_\_\_

Examiner: \_\_\_\_\_

For: **COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING  
APPARATUS AND PROCESS**



**JOINT DECLARATION SUBMITTED UNDER 37 C.F.R. §1.57 (b)**

TO: The Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

SIR:

Petitioners (1) Bill L. Davis, of 1126 Tipton Road, Irving, Texas 75067; and (2) Jesse S. Williamson, of 5738 Caruth, Dallas, Texas 75209, declare that:

1. In approximately June 1994, Williamson Printing Corporation ("Williamson Printing"), Petitioner's employer, ordered several printing presses from Heidelberg Druckmaschinen of Heidelberg, Germany ("Heidelberg"). One of these presses, a seven-color press with a tower coater ("the seven-color press") was installed at Williamson Printing in approximately October 1994. Both before, during and after this time, Petitioners and Williamson Printing researched and observed flexographic printing/coating systems offered by several companies, including Printing Research, Inc. ("Printing Research"). In approximately October-November 1994, Printing Research demonstrated to Petitioners its end-of-press anilox coating

W000769

system, known as the plate blanket coater. This system was demonstrated using flexographic plates, inks, coatings, and slurries.

2. Printing Research's end-of-press plate blanket coater is shown in Figure 1 of Printing Research's brochure, which is attached as Exhibit 1, together with the correspondence from Printing Research with which it was sent. The plate blanket coater shown in Figure 1 of the brochure will not work on presses with extended delivery such as the Heidelberg presses purchased by Williamson Printing.

3. In approximately December 1994, Petitioners requested Printing Research to design and install on the tower coater at the end of Williamson Printing's seven-color press an experimental flexographic printer coater having an anilox roller. This experimental printer coater was different from the plate/blanket coater shown in Figure 1 of Exhibit 1, and it was installed on the downstream side of the tower coater at the end of the seven-color press. In approximately January 1995, this experimental printer coater was tested at Williamson Printing using flexographic plates, inks, coatings, and slurries.

4. One of the other presses purchased by Williamson Printing from Heidelberger in approximately June 1994 was a triple tower press ("triple tower press"), which is also known as the LYL press. The triple tower press arrived at Williamson Printing in approximately February 1995 and was installed thereafter.

5. In approximately late January or early February 1995, Petitioners requested Printing Research to design and install on the first printing station of the triple tower press a flexographic printer coater like the experimental printer coater installed on the seven-color press. This unit was installed on the seven-color press in approximately mid-March 1995. Thus, at or about this time, Petitioners' invention was disclosed or imparted, at least in part, to Printing Research. To the best of our recollection, at no time did Petitioners or other technical personnel from Williamson Printing and technical personnel from Printing Research exchange technical memoranda as to the invention disclosed in the '363 patent or otherwise work together intimately in an integrated joint research project regarding Petitioners' '363 process. The only



W000770

correspondence we can find between Williamson Printing and Printing Research after Exhibit 1, and prior to installation of the interstation printer coater, is attached hereto as Exhibit 2.

6. The coater apparatus designed and installed on the first printing station of the triple tower press is the coater apparatus 43 shown in Figure 2 of the U. S. Patent No. 5,630,363 ("the '363 patent") and described in the specification at, for example, col. 6, lines 22-32. As explained in the specification of the '363 patent, coater apparatus 43 may be used to convert a conventional offset lithographic printing station to a station for performing the flexographic process to apply flexographic inks, coatings, and other liquid vehicles containing suspended particles such as metal particles or encapsulated essences. Figure 2 of the '363 patent does not show or describe the end-of-press plate/blanket coater of the brochure of Exhibit 1, but reflects a custom-made interstation printer coater designed at the request of Petitioners for Petitioners' method.

7. Subsequent to the filing date on August 14, 1995 of Petitioners' application leading to the '363 patent, Howard W. DeMoore and two other employees of Printing Research filed two applications on October 2, 1995, Serial Nos. 538,123 and 538,274, having common disclosure leading to U. S. Patents No. 5,615,316 (method) and No. 5,598,777 (apparatus). Neither the '316 or '777 patents disclose or claim Petitioners' claimed method or claimed apparatus, or the apparatus of Figure 2 of the '363 patent, or even the previously mentioned apparatus of Figure 1 of Exhibit 1.

8. On January 19, 1999, Petitioners and representatives of Printing Research, including Howard W. DeMoore and Steve Garner, attended a meeting with Petitioners at Williamson Printing's offices. At that time, Mr. DeMoore, for the first time, informed Petitioners that he had learned of the '363 patent. In the ensuing discussion about the '363 patent at that meeting, Petitioner Williamson informed Mr. DeMoore that Williamson Printing was willing to grant Printing Research a license under the '363 patent in exchange for payment of a royalty. At that meeting, no claim was made by any representatives of Printing Research that Mr.

DeMoore or any other employees of Printing Research were co-inventors of the invention of the '363 patent

9 Following this meeting, another meeting was held at Williamson Printing on January 29, 1999, which was attended by Petitioners, other employees of Williamson Printing, and representatives of Printing Research. At this meeting, the basis for determining a royalty for a license under the '363 patent was discussed, and Mr. DeMoore said that Printing Research would pay a royalty for a license under the '363 patent.

8. The parties commenced writing each other after these January meetings starting in early February 1999. (See Exhibit 3). On or about March 31, 1999, a letter addressed to Mr. Jerry Williamson, the Chairman of the Board of Williamson Printing, was hand delivered to Williamson Printing by Steve Garner of Printing Research. A copy of this letter is attached as Exhibit 4. In that letter, Mr. DeMoore claimed for the first time that one or more employees of Printing Research should have been designated as co-inventors of the invention of the '363 patent.

9. On or about April 7, 1999, a letter was sent by Jerry Williamson to Mr. Howard DeMoore in response to the letter of March 31, 1999. A copy of the April 7, 1999, letter is attached hereto as Exhibit 5. In the fourth paragraph of that letter, Mr. Williamson stated the following:

We are quite surprised by your latest position that somehow you and/or others at PRI should be named as inventors on the patent. It is unusual that you would now, for the first time, make such an allegation after so many prior discussions regarding PRI taking a license under the patent. Apparently, your allegation was made only after PRI was dissatisfied with WPC's proposed royalty rate to license the patent.

In the fifth paragraph of this letter, Mr. Williamson stated the following:

In any event, based on the information provided to me and discussions with our patent attorney, we believe Bill and Jesse are the correct, and are the only inventors because they had a complete conception of the claimed invention before PRI was asked to design the equipment, to which you refer in your letter, for use with our process. If you have any additional information concerning this matter, please forward it to me as quickly as possible for our review and discussion.

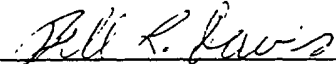
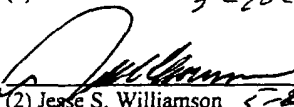
PRINTING RESEARCH

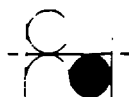
10. On or about April 13, 1999, Jerry Williamson received another letter from Mr. DeMoore, a copy of which is attached as Exhibit 6. In response to Mr. DeMoore's letter of April 13, 1999, Jerry Williamson sent a letter dated April 23, 1999, to Mr. DeMoore. A copy of this letter is attached hereto as Exhibit 7.

11. On or about April 27, 1999, Mr. DeMoore again wrote Jerry Williamson in regard to inventorship of the '363 patent. A copy of this letter is attached hereto as Exhibit 8. In response to Mr. DeMoore's letter of April 27, 1999, Jerry Williamson, on or about May 5, 1999, sent another letter to Mr. DeMoore, a copy of which is attached as Exhibit 9. In the fourth paragraph of this letter, Mr. Williamson again requested Mr. DeMoore to provide for Williamson Printing's consideration "any documentation indicating that you, or anyone else at Printing Research, should be designated as an inventor of the printing apparatus described in claims 1-28 of our patent, or the process described in claims 29-41 of our patent . . . ." To the best of Petitioners' knowledge, no such documentation or additional information on this subject has been provided to Williamson Printing by Printing Research.

12. At no time has Printing Research asserted to Petitioners that the '316 or '777 patents disclose or claim a common invention with our '363 patent.

Petitioners hereby declare that all statements herein of their own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

  
(1) Bill L. Davis 5-20-99  
  
(2) Jesse S. Williamson 5-20-99



Printing Research, Inc.

'Mark-less' Super Blue'

December 16, 1994

Mr. Bill Davis  
Williamson Printing Corporation  
6700 Denton Drive  
Dallas TX 75229

Dear Bill,

We have enclosed drawings showing the 5 Heidelberg Speedmaster CD press configurations ordered by yourselves.

We look forward to our test runs on the Super Blue EZ Blanket Coater next week.

Sincerely yours,


John Bird  
Product Manager

JB:ln

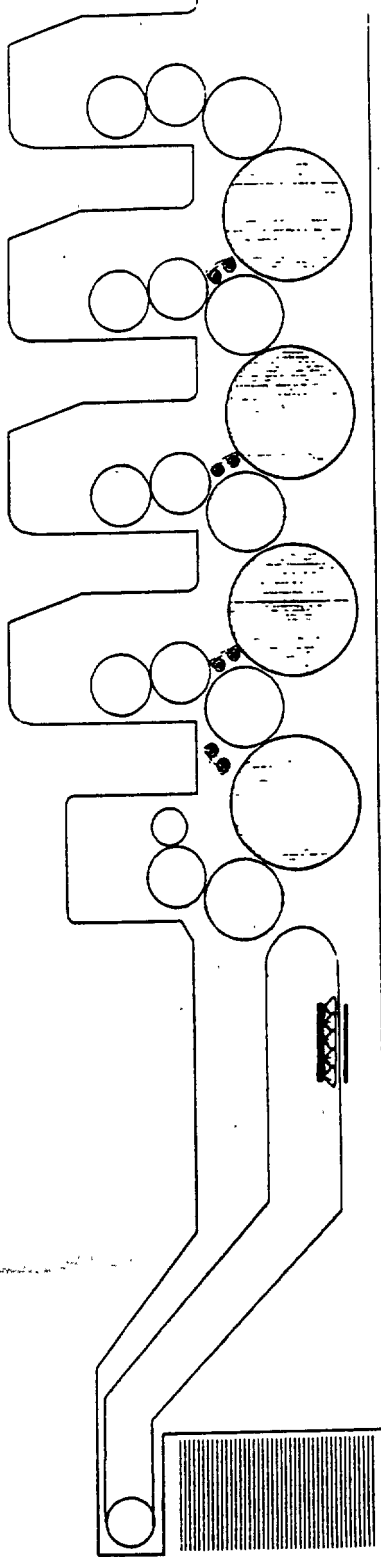
Enclosures: dwg

cc: Steve Baker




W000773

 **Williamson Printing Corporation**  
Press No. 1, 2, 4 & 5

**Heidelberg**  
**Speedmaster CD**  
with Coating Tower  
and Extended Delivery

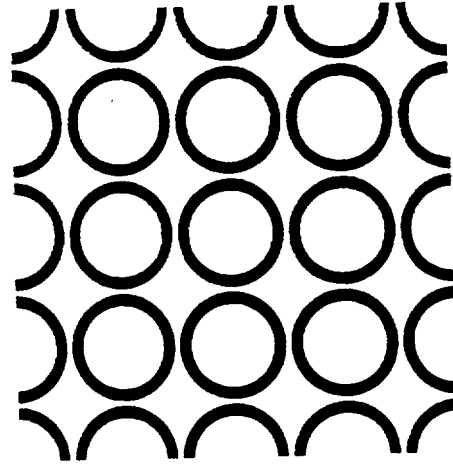


**Legend:**

-  **Super Blue® Wash-Free Anti-Marking Cylinder**
-  **Super Blue® Air Blanket Infrared Dryer**
-  **Super Blue® High Velocity Hot Air Dryer**

**Printing Research, Inc.**

W000774



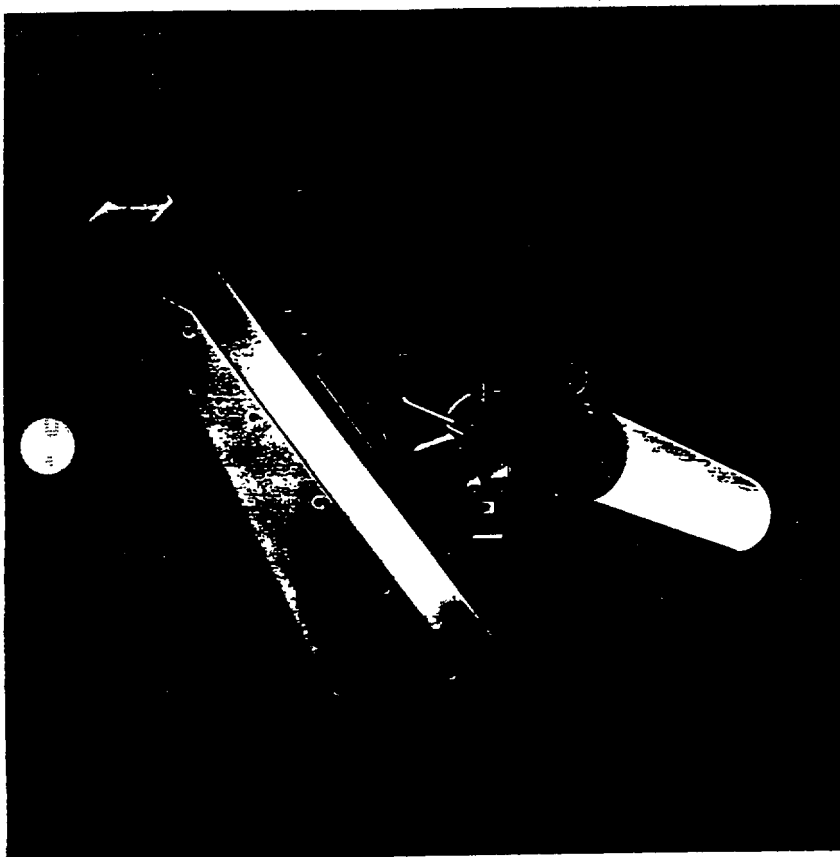
SUPER BLUE

**PBC PLATE/BLANKET  
AND PC PLATE COATER**

**BECAUSE TO MOST  
CUSTOMERS HIGH  
GLOSS MEANS  
HIGH QUALITY**

W000775

# It is now possible to dramatically increase gloss levels of printed sheets



## High-impact quality at low cost

Among print buyers and consumers alike, "gloss" and "feel" are strongly associated with quality. Through our systems, printers can profitably achieve superb finish-quality and high-impact appearance at low cost.

Our Plate/Blanket Coater (PBC) maximizes your coating flexibility, giving you more precise control and broader capabilities than ever before. Offering full-coverage gloss or matte coatings as well as spot coatings of impeccable register and quality, the PBC smoothly and consistently applies uniform coatings of a wide viscosity range to any desired thickness.

- Precision spot-register applications
- Elimination of halos and hard/beaded edges
- Maximum coating application

The advent of coatable, water-based and UV-curable resins offers sheetfed color printers the unprecedented power to add high gloss levels, special effects and unusual surface treatments to their range of *in-house* capabilities. These coatings vastly exceed the gloss potential of varnish, while banishing forever the mess and quality problems spray powder causes in the pressroom.

## Maximize press utilization while minimizing clean-up

Because the PBC is easily retracted when coating is not necessary, the press unit used for coating can function as a full printing unit whenever you need it. Or, you can easily establish a dedicated coating line on an under-used press. What's more, with our coaters, you will eliminate forever the press downtime associated with blanket cutting, packing and image registration. No other coater can accomplish this.

Our coaters minimize wash-up and makeready, offering unrivaled time and cost savings. Ruggedly constructed, easy to operate and maintain, our patented coaters are on the leading edge of industry technology.

Winner



InterTech Award

- Makeready as fast as regular ink presses
- Elimination of slinging and misting problems
- Minimized wash-up times

## Improved quality means customer satisfaction

The PBC provides unparalleled quality control, enabling you to coat with as much control as you print. Coating material is applied as if it were another ink color, using your printing unit as it was designed to operate — to lay down a precise film membrane on the substrate.

What's more, the PBC achieves this high-impact appearance in a fraction of the time it takes to varnish or laminate — and without the mess and quality control problems associated with these now obsolete methods. So your customers receive the highest quality product, with an incredibly fast turnaround.

## Super Blue Plate/Blanket Coater

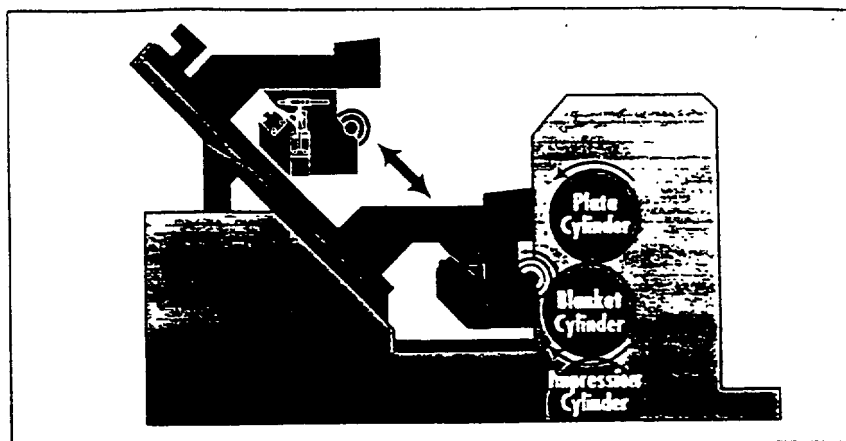
The PBC applies coating either at the blanket, for full coverage work, or at the plate, for precise register application of spot coating without hard edges. Or when coating is not necessary, it can be easily retracted to allow for regular printing uses. Unlike other coater designs that haphazardly squeeze coating material onto substrate under pressure — slinging coating material — the shear-coating PBC works neatly and precisely.

In the blanket mode when overall coverage is required, PBC's design provides for fast makeready and smooth application of the coating.

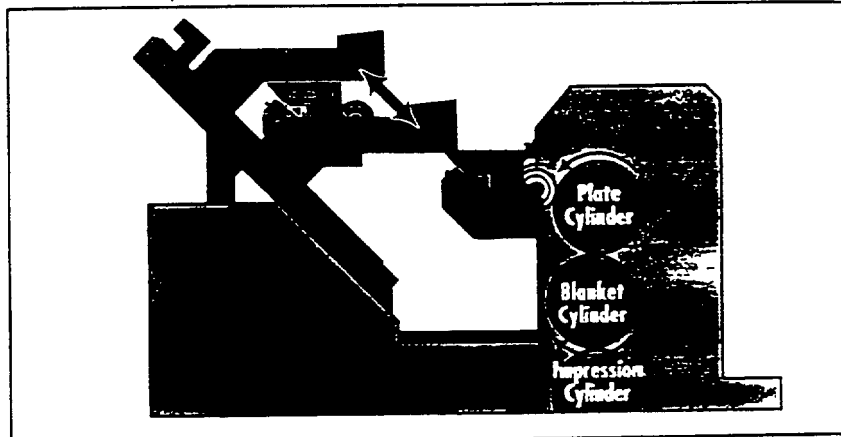
In the plate mode, the coater applies coating to a relief image on the plate cylinder to apply a uniform thickness of the coating film to the blanket cylinder. This coating "image" is then transferred by the blanket to the substrate, ensuring precise registration in all axes. Coating thickness and pressure between the plate, blanket and impression cylinders are all accurately and easily controlled.

Both the PBC and its Common Impression Cylinder (CIC) press counterpart, the Plate Coater (PC), improve operational profitability by eliminating the extensive "wash-up" downtime associated with coater dampeners — the only alternative with a CIC press. The typical two to three hour wash-up is reduced to less than a half hour, and the entire process is carried out independently from the press.

Being fully retractable, the coater does not interfere with the dampening system, ensuring fast changeover from print to coat and coat to print. This makes your entire operation more efficient *and* more profitable.



**PBC in Blanket Position**

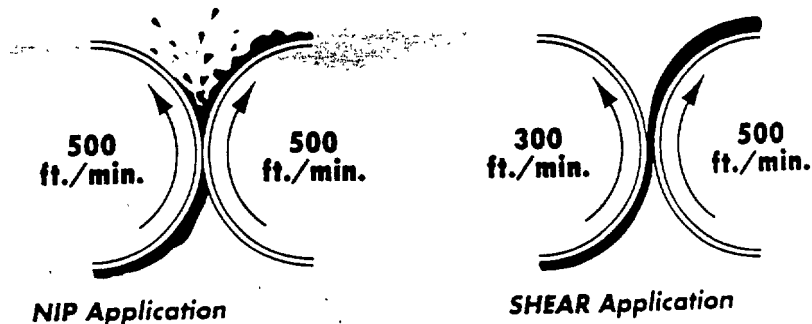


**PBC in Plate Position**

## Productivity, safety and long-term value

As a supplier of precision-engineered coating and drying systems for the graphic arts and packaging industries, Printing Research, Inc.'s high-performance systems improve your bottom-line profitability by adding value to your existing operations. With our systems, you improve the quality of your services by becoming a low-cost provider of the highest quality printing — all while maximizing the utilization of your existing presses. Our dependable, high-performance systems will increase your sales, profits and customer satisfaction levels.

See the difference yourself. Experience a demonstration of our PBC and PC and witness how coatings can be as easy to handle and precise to apply as the ink used in daily printing!



**NIP Application**

**SHEAR Application**



**Instant-drying inks and the elimination of spray powder have been the dream of every printer and printing buyer. The idea was put forward in the 1970's and 80's that it would be possible to print with conventional inks and apply a coating which would dry completely before placement on the delivery stack. This would place a dry skin over the ink, eliminating offsetting, sheet marking and the need for spray powder. The inks dry under the coating.**

**The advent of the 90's has made the dream a reality. It is now possible to print superior quality with conventional inks and coat the surface in order to deliver a dry, mark-free sheet at full production speeds. This is what the Super Blue products from Printing Research accomplish for you.**



**Printing Research, Inc.**

10954 Shady Trail Dallas, Texas 75220 U.S.A.

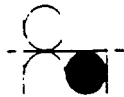
Telephone 214-353-9000

Telex 794028 Superblue dal

Fax 214-357-5847

Patented

W000778



Printing Research, Inc.

"Mark-less" Super Blue

January 25, 1995

Mr. Jesse Williamson  
Williamson Printing Corporation  
6700 Denton Drive  
Dallas TX 75235

214-904-2100 (Phone)

Dear Jesse,

It was a great pleasure speaking with you. We have enclosed product information and the following Super Blue proposal for installation on your:

Heidelberg 102CD+L+Y+L, 6 color, 40 inch press with extension

We propose:

- A Super Blue EZB Blanket Coater for installation at the blanket cylinder.

The benefits to you of installing the Super Blue Coater System are as follows:

- Automatic recirculation system
- Automated wash up procedure
- Consistent overall coating weight
- Sealed doctor blade assembly
- Totally independent of dampening system
- Elimination of lengthy wash up procedures

We look forward to serving your needs and thank you for your interest in our Super Blue range of products. For more information please contact us at 1-800-627-5537.

Sincerely yours,

Steve Baker  
District Sales Manager

SB:nw

Enclosures: P/PRO/DWG

cc: Bill Davis - Williamson Printing Corporation  
John Bird  
Steve Garner

W000779



Printing Research, Inc.

"Mark-less" Super Blue

January 25, 1995

Mr. Jesse Williamson  
Williamson Printing Corporation  
6700 Denton Drive  
Dallas TX 75235

214-904-2100 (Phone)

Dear Jesse,

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- Totally independent of dampening system
- Elimination of lengthy wash up procedures

We look forward to serving your needs and thank you for your interest in our Super Blue range of products. For more information please contact us at 1-800-627-5537.

Sincerely yours,

Steve Baker  
District Sales Manager

SB:nw

Enclosures: PI/PRO/DWG

cc: Bill Davis - Williamson Printing Corporation  
John Bird  
Steve Garner

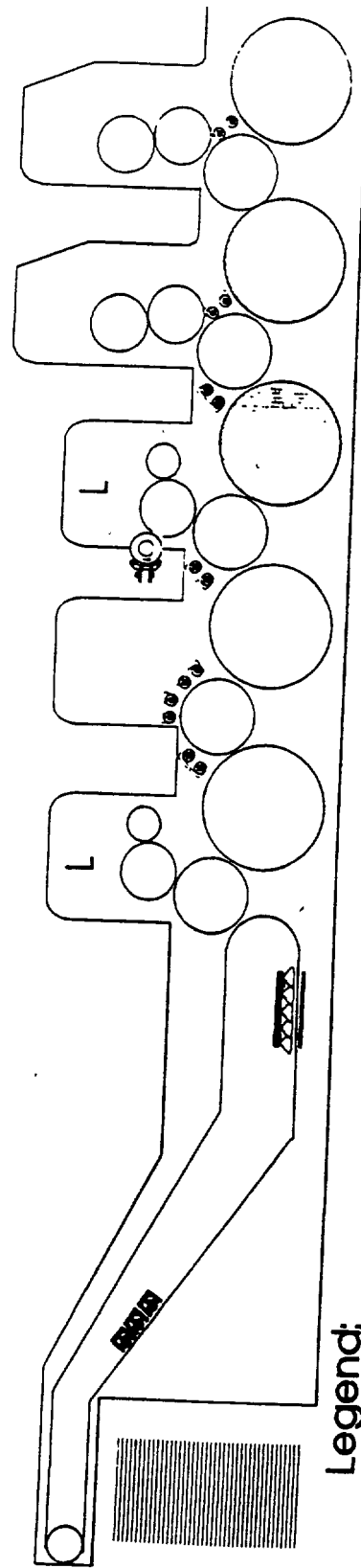
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FOR SALE



Williamson Printing Corporation  
Press No. 3

Heidelberg  
Speedmaster CD LYL  
with Coating Tower  
and Extended Delivery



Legend:

- Super Blue® Wash-Free Anti-Marking Cylinder
- ▤ Super Blue® Air Blanket Infrared Dryer
- Super Blue® High Velocity Hot Air Dryer
- Super Blue® 'Cold' Ultra Violet Dryer
- ⊙ Super Blue® EZB Blanket Coater

Printing Research, Inc.



Printing Research, Inc.

'Mark-less' Super Blue'

09525

Williamson Printing Corporation

January 25, 1995

## SUMMARY OF PROPOSAL

for

HEIDELBERG 102CD+L+Y+L 6/CT/Y/CT / 40

<u>QTY</u>	<u>EQUIPMENT</u>	<u>PRICE</u>
1	SUPER BLUE EZB BLANKET COATER (EZB)	<u>\$ 54,634.</u>
	TOTAL EQUIPMENT (FOB Factory)	\$ 54,634.

FREIGHT PREPAID AND ADDED TO INVOICE, INSTALLATION AND  
TRAINING CHARGED AT \$575. PER DAY PER MAN PLUS AIRFARES

<u>QTY</u>	<u>RECOMMENDED SPARE PARTS</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
1	SPARE LASER ENGRAVED CERAMIC APPLICATOR ROLL ASSEMBLY	3,300.	\$ 3,300.
1	DOCTOR BLADE ASSEMBLY	3,315.	<u>3,315.</u>
	TOTAL RECOMMENDED SPARE PARTS		\$ 6,615.

'Proposal', 'Sales Terms and Conditions' on Reverse Side and 'Terms of Proposal' Accepted by:

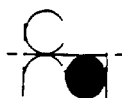
NAME \_\_\_\_\_

TITLE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

W000782



Printing Research, Inc.

'Mark-less' Super Blue'

EZB 09525  
Williamson Printing Corporation  
January 25, 1995

**PROPOSAL  
for  
SUPER BLUE EZB™ BLANKET COATER**

<u>PRESS</u>	<u>COLOR/SIZE</u>	<u>PRICE</u>
HEIDELBERG 102CD+L+Y+L	6/CT/Y/CT / 40	\$ 54,634.

**RECOMMENDED SPARE PARTS:**

One Spare Laser Engraved Anilox Roll Assembly  
One Spare Doctor Blade Assembly

**PURPOSE**

Application of aqueous or UV coatings to the blanket cylinder of a press unit for overall or pattern coating.

**APPLICATION**

Paper, Card, Carton Board, Corrugated, Plastic, Foil

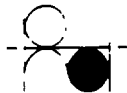
**CONFIGURATION**

Speed control of the Anilox applicator roll is maintained through throttling valves linked to a tachogenerator.

Start/Stop controls are interlocked with press controls to suit. The Anilox applicator roll is laser engraved ceramic. The doctor blade assembly coating chamber is a specially sealed unit with a positive pump drain. Automatic cleaning recirculation system.

Enclosures: Sales Terms and Conditions  
Terms of Proposal

W000783



Printing Research, Inc.  
'Mark-less' Super Blue'

095216  
Williamson Printing Company  
February 16, 1995

**SUMMARY OF PROPOSAL**  
for  
**HEIDELBERG SPEEDMASTER CD 6+LYL / 40**

<u>QTY</u>	<u>EQUIPMENT</u>	<u>PRICE</u>
1	SUPER BLUE EZ INTERSTATION FLEXO PRINTER COATER (EZI)	<u>\$ 62,084.</u>
	<b>TOTAL EQUIPMENT (FOB Factory)</b>	<b>\$ 62,084.</b>

**\* DELIVERED AND INSTALLED**

<u>QTY</u>	<u>RECOMMENDED SPARE PARTS</u>	<u>PRICE</u>
1	SPARE LASER ENGRAVED CERAMIC APPLICATOR ROLL ASSEMBLY	<u>\$ 3,300.</u>
1	DOCTOR BLADE ASSEMBLY	<u>3,315.</u>
	<b>TOTAL RECOMMENDED SPARE PARTS</b>	<b>\$ 6,615.</b>

**'Proposal', 'Sales Terms and Conditions' on Reverse Side and 'Terms of Proposal' Accepted by:**

**NAME**

**TITLE**

**SIGNATURE**

**DATE**

W000784



Printing Research, Inc.

"Mark-less" Super Blue

February 16, 1995

Mr. Jesse Williamson  
Williamson Printing Company  
6700 Denton Drive  
Dallas, Texas 75235

214-904-2100 (Phone)

Dear Jesse,

Further to our meeting of 2-11-95 we confirm the following:

1. We are producing an experimental EZ interstation flexo printer coater for installation on your Heidelberg Speedmaster CD 6 color + LYL, 40 inch press with a target to be installed and operational date of March 15, 1995. This unit for adaptation to the first coating tower of the LYL.
2. The experimental EZ coater will have a coating face length of 39.5 inches. Production models for the Coater position 'L' will have a coating face length of 40.55 inches and for interstation printing unit positions will have a coating face length of not less than 38 inches.
3. The experimental EZ coater will be supplied at no charge to Williamson Printing Company. We anticipate that this unit will be replaced by a production unit at a later date.
4. We have enclosed updated proposals for Super Blue EZ interstation flexo printer coaters for installation on your Heidelberg Speedmaster CD presses.

We look forward to serving your needs and thank you for your interest in our Super Blue range of products. For more information please contact us at 1-800-627-5537.

Sincerely yours,

John Bird  
Product Manager

JB:tj

cc: Bill Davis - Williamson Printing Company  
Howard DeMoore  
Steve Garner  
Ed Schaffler  
Dave Douglas  
Steve Baker

W000786





## Williamson Printing Corporation

6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

February 24, 1995

John Byrd  
Printing Research Inc.  
Product Manager  
10954 Shady Trail  
Dallas, TX 75220

Dear John,

This letter is to clarify our understanding regarding damages to our Heidelberg 7 color press. The damages to our 7 color press occurred on Sunday, February 11th. The damages were caused by a bolt which passed between the impression cylinder and the plate/blanket cylinder, and also between the plate/blanket cylinder and the coating roller. It is our understanding that Printing Research assumes responsibility for repairs of these damages. To that end, Printing Research has given a purchase order to Heidelberg USA for a new coating roller which should be delivered to our plant the week of February 27th.

It is also our understanding that repairs to the impression cylinder and the plate/blanket cylinder will be done by Santa Fe Machine Repair of Los Angeles. Santa Fe Machine will use a nickel chrome alloy metal spray to repair the damages to the cylinders. The nickel chrome alloy should more closely match the chrome alloy finish on the said cylinders. If, for any reason, the repairs by Santa Fe Machine are not successful then it would be necessary to replace the two cylinders in the Tower Coater.

Because of the extreme busy condition in our sheetfed pressroom at this time, I am proposing that we make a temporary repair to these cylinders. We will make these repairs on Sunday, February 26th. This will get us by until we can schedule the press down for two consecutive days, a Saturday and a Sunday, sometime in the Spring.

Please let me know if this is your understanding of this situation. Thank you in advance for your cooperation. If you have any questions, please give me a call.

Sincerely,

*Bill Davis*  
Bill Davis

cc: Jerry Williamson  
Jesse Williamson  
Bob Emrick  
Bob Boyer  
Jim Johnson

W000787



WILLIAMSON PRINTING CORPORATION

6700 Denton Drive Dallas, Texas 75235 4497 214 904 2100 Fax: 214 352 1942 TWATS 800-943 5423

February 11, 1999

Mr. Howard DeMoore  
Printing Research  
10954 Shady Trail  
Dallas, TX 75220

Re: WPC Patent

Dear Howard:

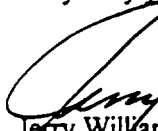
Pursuant to our telephone conversation on this past Friday, February 5, regarding the above referenced, the purpose of this letter is to confirm my understanding on how we

It was my impression, that you would present us with a proposal on how you saw us moving forward on this situation. As a matter of fact, I believe you stated that you would send such a proposal early this week. As of this writing, I have not been contacted.

Since I have not heard from you, I became concerned that perhaps we had a misunderstanding. I thought that the "ball was in your court," and have been waiting for you. If my impression is wrong, please let me know, and let us decide how we should proceed.

I would appreciate your response at your earliest convenience, and I am looking forward to hearing from you.

Very truly yours,

  
Jerry Williamson  
Chairman of the Board

cc: Bill Davis  
Woody Dixon  
Jesse Williamson

W000788



HAND DELIVERED

BY: MR. STEVE GARNER

March 31, 1999

Mr. Jerry Williamson  
Williamson Printing Corporation  
6700 Denton Dr  
Dallas TX 76235-4497

Re: **Lithoflex™ Process and Apparatus**  
**U.S. Patent 5,630,363**  
**File No. 73310 70665**

Dear Jerry,

This is a follow-up to our telephone conversation of March 24, 1999 concerning our desire to resolve any issues between our companies arising from the existence of U.S. Patent 5,630,363. This '363 patent explicitly describes the Printing Research, Inc. apparatus even to the detail of the manual latch-up mechanism utilized on the original prototype designed by Ron Rendleman in December 1994 and from which we produced our DRUPA 95 brochure (see enclosed). I am sure we also all recall the numerous tests and evaluations initiated and completed as early as the fall, 1994 at PRI's facility to develop this in-line flexo/litho process, a process in which PRI's lithoflex printer/coater is essential. The '363 patent was subsequently obtained by Williamson Printing Company, Inc., without our knowledge and without naming us as co-inventors.

We feel most strongly that this is not correct and places the patent in jeopardy because U.S. Patent Law requires a patent to be issued in the name of the true inventors. A patent not so issued is invalid, unless inventorship can be corrected. We have been injured because we have not been able to sell our Lithoflex™ equipment to customers until the patent situation is cleared up. This is extremely unfair to Printing Research, Inc.. The patent in question discloses our own invention and we should be able to use our own invention to practice the invention disclosed in the '363 patent. We honestly feel that we are joint inventors and it is only right that we be named as such on the '363 patent.

214.353.9000  
USA 800.627.5537  
FAX 214.357.5847  
[www.superblue.net](http://www.superblue.net)

10954 Shady Trail  
Dallas, Texas 75220 USA

W000789

Mr. Jerry Williamson  
March 31, 1999  
Page 2.

The simplest way to handle this is for application to be made with your cooperation to add the missing inventors under 35 U.S.C. § 256.<sup>1</sup> Printing Research, Inc. will pay for the cost of the application to name the correct inventors. We will also compensate you for the prosecution of patent '363.

Since the process of correcting the inventorship may take a year or more and we are losing business right now, we ask in the meantime that you, on behalf of the present assignee, sign a copy of this letter in the space below, and promptly return it to me. Once the inventorship is properly corrected, each of our companies will be protected for their own uses under 35 U.S.C. § 262.

We believe this is a fair, simple and honest way to resolve this issue.

Very truly yours,

PRINTING RESEARCH, INC.

*Howard W. DeMoore*  
By: Howard W. DeMoore *sg*

Williamson Printing Corporation agrees with the above and believe it is entirely appropriate that Printing Research, Inc. inventors be named as joint inventors on U.S. Patent 5,630,363. Williamson Printing Corporation will cooperate fully with Printing Research, Inc. in achieving this goal.

WILLIAMSON PRINTING CORPORATION

By: Jerry Williamson, Chairman

Date

<sup>1</sup>Copies of the text of 35 U.S.C. § 256 and § 262 are enclosed for your information.

W000790

**Sec. 256. Correction of named inventor**

Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issued a certificate correcting such error. The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.

**Sec. 262. Joint owners**

In the absence of any agreement to the contrary, each of the joint owners of a patent may make, use, offer to sell, or sell the patented invention within the United States, or import the patented invention into the United States, without the consent of and without accounting to the other owners.



WILLIAMSON PRINTING CORPORATION

6700 Denton Drive Dallas, Texas 75235 4497 214 904 2100 Fax 214 352 1342 TWX 800 943 5423

April 7, 1999

Mr. Howard DeMoore  
Printing Research, Inc.  
10954 Shady Trail  
Dallas, TX 75220

Re: Lithoflex™ Process and Apparatus  
U.S. Patent 5,630,363  
File No. 73310-70665

Dear Howard:

W000792

Thank you for your letter of March 31, 1999, regarding the above referenced matter.

Following our previous telephone conversations, including our latest on March 24, 1999, I discussed this matter, including your stated position, with my brother, Jesse, Bill Davis and others here at Williamson Printing Corporation (WPC), as well as our attorneys, and we are under the belief that we have perfected a good and valid patent, which we intend to protect, at all costs.

The purpose of our filing for, and obtaining, the patent was to protect our valuable invention, which we developed. Just as you and Printing Research, Inc. (PRI) protect your valuable intellectual property rights, we at WPC have a policy and history of protecting our valuable intellectual property rights.

We are quite surprised by your latest position that somehow you and/or others at PRI should be named as inventors on the patent. It is unusual that you would now, for the first time, make such an allegation after so many prior discussions regarding PRI taking a license under the patent. Apparently, your allegation was made only after PRI was dissatisfied with WPC's proposed royalty rate to license the patent.

In any event, based on the information provided to me and discussions with our patent attorney, we believe Bill and Jesse are the correct, and are the only inventors because they had a complete conception of the claimed invention before PRI was asked to design the equipment, to which you refer in your letter, for use with our process. If you have any additional information concerning this matter, please forward it to me as quickly as possible for our review and discussion.

I am sorry to hear that you feel you have been injured by not being able to sell your Lithoflex™ equipment. I would therefore appreciate your sharing with me specifically with whom, and when, you experienced these rejections, and perhaps we can reach a satisfactory solution. It is certainly my understanding that you can sell your equipment for use with presses and printing processes that are not covered by our patent.

April 7, 1999

page 2 of 2

Re: Lithoflex™ Process and Apparatus

U.S. Patent 5,630,363

File No. 73310-70665

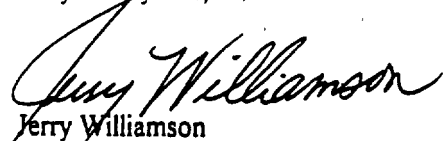
It has not, and is not, our intent to cause you or PRI any injury or ill-will, but you should be advised that we are entertaining some rather exciting opportunities, of which we must take advantage.

We would certainly like to settle any misunderstanding amicably, and we are willing to structure a reasonable business arrangement that will be mutually beneficial to both PRI and WPC.

Again, thank you, and I look forward to hearing from you at your earliest convenience. Please let us try to resolve this amicably and expeditiously.

In the meantime, if you have any questions, please let me know.

Very truly yours,



Jerry Williamson  
Chairman of the Board

cc: Bill Davis                      Steve Garner  
     Woody Dixon  
     Jesse Williamson  
     John Pinkerton, Esq.

W000793



HAND DELIVERED

BY: RON RENDLEMAN

April 13, 1999

Mr. Jerry Williamson  
Williamson Printing Corporation  
6700 Denton Dr  
Dallas TX 76235-4497

**Re: Lithoflex™ Process and Apparatus**  
**U.S. Patent 5,630,363**  
**File No. 73310 70665**

Dear Jerry,

We received your letter of April 9, 1999. To our amazement, you appear to be saying Jesse and Bill Davis are the only and correct inventors of U.S. Patent 5,630,363 and that you or someone at Williamson Printing Corporation (WPC) asked Printing Research, Inc. (PRI) to design the equipment to carry out your process.

Whether you have a "good and valid patent", as you say, depends upon whether the first and true inventors are named on the patent or it can be corrected to name them. It is in your interest as well as ours to have the right inventors named.

Apparently you have been provided with information upon which you conclude Bill and Jesse are the correct and only inventors despite our strong protest to the contrary. We would like you to share this information with us. Without some documented evidence to understand how you have come to this conclusion, we will not be able to accept or settle the matter in a mutually beneficial way, though we would like to.

If PRI was asked to design the equipment as you say, we would like to know who did the asking, who was asked, and date. We would suppose there must be letters, plans and drawings that exist to show what the inventors contemplated at the time of the "complete conception". If they exist, let's see them.

214.353.9000  
USA 800.627.5537  
FAX 214.357.5847  
[www.superblue.net](http://www.superblue.net)

10954 Shady Trail  
Dallas, Texas 75220 USA

W000794



Mr. Jerry Williamson

April 13, 1999

Page 2.

If you can provide us documentation that demonstrates your position, we will of course be responsive, although we are presently of the view that the facts are as we previously explained.

Please let us hear from you at your earliest convenience.

Very truly yours,

PRINTING RESEARCH, INC.

*Howard DeMoore*

By: Howard W. DeMoore

100-345167-1

W000795



WILLIAMSON PRINTING CORPORATION  
6700 Denton Drive Dallas, Texas 75235-4497 214-904-2100 Fax: 214-352-1842 WATS: 800-843-5423

April 23, 1999

Mr. Howard DeMoore  
Printing Research, Inc.  
10954 Shady Trail  
Dallas, TX 75220

Re: Lithoflex™ Process and Apparatus  
U.S. Patent 5,630,363  
File No. 73310-70665

Dear Howard:

Thank you for your letter of April 13, 1999, and please accept my apologies for my belated response.

Since it is apparent that we are not going to resolve our differences on this matter through our letter writing, may I suggest that we set up a meeting of all the appropriate parties, including our patent attorneys, if you so desire, at a time and place at everyone's earliest convenience.

Perhaps if we get everyone together in such a meeting, we can arrive at a mutually satisfactory resolution.

If you have any better suggestions, I welcome your thoughts.

In the meantime, I will be asking our folks to check their schedules to see when we could all be available for such a meeting.

I look forward to hearing from you at your earliest convenience.

Very truly yours,

  
Jerry Williamson  
Chairman of the Board

cc: Bill Davis  
Woody Dixon  
Jesse Williamson  
John Pinkerton, Esq.

Steve Garner

W000796



**HAND DELIVERED**  
**BY: RON RENDLEMAN**

April 27, 1999

Mr. Jerry Williamson  
Williamson Printing Corporation  
6700 Denton Dr  
Dallas TX 76235-4497

Re: **Lithoflex™ Process and Apparatus**  
**U.S. Patent 5,630,363**  
**File No. 73310 70665**

Dear Jerry,

I am very sorry to hear about the passing of your Mother. She was certainly was known as a grand lady. My deepest sympathies are with you, Jesse and your families. May the flowers from PRI serve as a token of our sympathy.

Your response of April 23, 1999 to our letter of April 13, 1999 does not address our request for proof of inventorship. Printing Research, Inc. (PRI) is being damaged by the existence of a patent, about which we first learned in December 1998 from a potential customer for our Lithoflex™ equipment. In the meantime, we continue to lose sales (and money) because of the necessary halting of our sales efforts.

Williamson Printing Corporation (WPC) flatly claims it developed U.S. Patent 5,630,363, and that its employees are the only inventors of the subject matter. According to your letter, PRI's only involvement was to design the equipment. We certainly question the matter of inventorship and need your proofs to evaluate your claim.

If you are in possession of written documentation that will demonstrate that you are correct in your position, then let's see that information and let's see it now! Since it is your contention that WPC personnel "asked" PRI to build the equipment that WPC allegedly conceived, we need to know by whom and when. Additionally, we would like to see copies of your drawings and specifications as well.

214.353.9000  
USA 800.627.5537  
FAX 214.357.5847  
[www.superblue.net](http://www.superblue.net)

10954 Shady Trail  
Dallas, Texas 75220 USA

W000797

Page 2

Very truly yours,

Howard DeMoore

Howard W. DeMoore  
Chairman

[illegible]

W000798



WILLIAMSON PRINTING CORPORATION

6700 Denton Drive Dallas, Texas 75235-4497 214-904-2100 Fax 214-352-1842 TWATS 800-443-4423

May 5, 1999

Mr. Howard DeMoore  
Printing Research, Inc.  
10954 Shady Trail  
Dallas, TX 75220

Re: Lithoflex™ Process and Apparatus  
U.S. Patent 5,630,363  
File No. 73310-70665

W000799

Dear Howard:

Thank you for your letter of April 27, 1999. We appreciate your kind remarks, flowers and expression of sympathy.

Frankly, I am somewhat surprised with the balance of your letter. It was completely unresponsive to my letter to you of April 23, to which you referred.

You state in your letter that I did not address your "request for proof of inventorship." This is one of the topics I thought we would discuss at the meeting I suggested. In any event, as I have stated several times, we believe that Jesse and Bill are the correct, and only inventors, of the invention covered by our patent. Furthermore, it is my understanding that, under the U.S. patent law, there is a presumption that our patent is valid and that inventorship is correct.

Under these circumstances, your demand for us to provide documentation to you that our position is correct is completely unwarranted. Howard, the shoe is on the other foot. As stated in my previous letter, if you have any documentation indicating that you, or anyone else at Printing Research, should be designated as an inventor of the printing apparatus described in claims 1-28 of our patent, or the process described in claims 29-41 of our patent, please provide that to me as soon as possible for our review and evaluation. As I said, we are willing to consider any additional information that you can provide to us.

You also mentioned in your letter that "Printing Research, Inc. (PRI) is being damaged" by the existence of our patent. I hope that you do not mean to imply by your statement that we are causing your company damage. I have addressed this claim earlier, and, as you are well aware, we have offered a license to PRI under our patent. Furthermore, it is my understanding that you are perfectly free to sell your product for use with printing presses and printing processes that are not covered by our patent.

WILLIAMSON PRINTING CORPORATION

May 5, 1999

Page 2 of 2

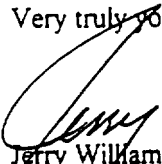
Re. Lithoflex™ Process and Apparatus

U.S. Patent 5,630,363

File No. 73310-70665

If you wish to discuss this further, please give me a call. I look forward to hearing from you.

Very truly yours,

  
Jerry Williamson  
Chairman of the Board

JBW:db

cc Bill Davis Steve Garner  
Woody Dixon  
Jesse Williamson  
John Pinkerton, Esq.

THE PATENT OFFICE

W000800

EXHIBIT C-1

EXHIBIT C-1

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF TEXAS  
DALLAS DIVISION

PRINTING RESEARCH, INC.  
AND HOWARD W. DEMOORE,  
Plaintiff

X

X

X

X

VS

X

CIVIL ACTION NUMBER  
3-99CV2254-M

X

WILLIAMSON PRINTING  
CORPORATION, BILL L. DAVIS  
AND JESSE S. WILLIAMSON,  
Defendants

X

X

X

X

VIDEOTAPED ORAL DEPOSITION

OF

RONALD RENDLEMAN

September 28, 2000

ANSWERS AND DEPOSITION OF RONALD RENDLEMAN,  
produced as a witness at the instance of the  
Defendants, taken in the above-styled and numbered  
cause on the 28th day of September, 2000 at 9:57 a.m.,  
before Pam Durrant, a Certified Shorthand Reporter in  
and for the State of Texas, via machine shorthand, at  
the offices of Locke Liddell & Sapp, located at  
2200 Ross Avenue in the City of Dallas, County of  
Dallas, State of Texas.

**COPY**

FORGED OFFERED



## A P P E A R A N C E S

MR. WILLIAM D. HARRIS  
MR. STEPHEN D. WILSON  
Locke Liddell & Sapp, L.L.P.  
2200 Ross Avenue  
Suite 2200  
Dallas, Texas 75201-6776

AND

MR. MARTIN J. SWEENEY  
Cozen and O'Connor  
2300 Bankone Center  
1717 Main Street  
Dallas, Texas 75201

## APPEARING FOR THE PLAINTIFF

MR. JOHN P. PINKERTON  
Worsham, Forsythe, Wooldridge, L.L.P.  
Energy Plaza, 30th Floor  
1601 Bryan Street  
Dallas, Texas 75201

AND

MR. ROBERT HARDY FALK, P.C.  
Falk & Fish  
700 North Pearl Street  
Suite 970  
Dallas, Texas 75201

## APPEARING FOR THE DEFENDANT

ALSO PRESENT: Mr. Howard DeMoore  
Mr. Dave Douglas  
Mr. Jesse Williamson  
Mr. Bill Davis  
Mr. Dick Roach, videographer

## I N D E X

Witness: RONALD RENDLEMAN

PAGE

Examination by Mr. Pinkerton

5

## E X H I B I T S

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2	U.S. Patent 5,370,976	40
3	U.S. Patent 5,6330,363	43
4	U.S. Patent 5,537,925	48
5	Plate blanket coater brochure	74
6	Super Blue EZ coater brochure	85
7	EZ blanket coater brochure	78
8	Copy of Mr. Rendleman's calendar	95
9	Drawing	102
10	Drawing	103
11	Drawing	117
12	Drawing	117
13	Documents showing Ocker's work	192
14	Documents showing work done by Ocker not related to coater	192
15	First Amended Original Complaint	207
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17-20	Drawings of different coater arrangements	212
21	Document 01144	217

## P R O C E E D I N G S

(Exhibits 1-3 marked)

THE VIDEOGRAPHER: We're on the video record, 9:57, tape one. This is the videotaped deposition, Ronald Rendleman, taken in the matter of Printing Research, Inc. et al. versus Williamson Printing Corporation, et al., Cause Number 3-99CV1154-M. Being heard before the United States District Court for the Northern District of Texas, the Dallas Division.

Deposition is being held at 2200 Ross, Suite 2400, Dallas, Texas, at the time and date indicated on the video screen.

Would counsel please state their appearances.

MR. PINKERTON: William.

MR. HARRIS: I'm Bill Harris, formally William D. Harris, Jr., appearing as co-counsel or counsel for Printing Research, Inc.

MR. SWEENEY: Marty Sweeney on behalf of the plaintiffs.

MR. PINKERTON: John Pinkerton with Worsham, Forsythe & Wooldridge, representing the defendants.

MR. FALK: Also representing the

1 defendants, Bob Falk of Falk & Fish.

2 MR. WILSON: Steve Wilson, the  
3 plaintiff, from Locke Liddell & Sapp.

4 THE VIDEOGRAPHER: Would the court  
5 reporter please administer the oath.

6 RONALD RENDLEMAN,  
7 having been duly sworn, testified as follows:

8 EXAMINATION

9 BY MR. PINKERTON:

10 Q. Tell us your full name, please.

11 A. Ronald --

12 MR. HARRIS: May I interrupt to say I  
13 know the Federal Rules say it. But just because you  
14 and I like to say it, let's say that objections are  
15 reserved until the time of trial except for the form  
16 of the question, as I believe to be true as the  
17 Federal Rules anyway.

18 MR. PINKERTON: That's agreeable, and  
19 that's been our agreement on all the depositions --

20 MR. HARRIS: Yes, it has.

21 MR. PINKERTON: -- right? Okay.

22 A. Okay.

23 Q. (By Mr. Pinkerton) Did you state your full  
24 name?

25 A. I started to. My full name is Ronald Merod

1 Rendleman.

2 Q. What's your present residence address?

3 A. 4331 Royal Ridge, Dallas, Texas 75229.

4 Q. And by whom are you presently employed?

5 A. Printing Research, Inc., Dallas, Texas.

6 Q. Mr. Rendleman, have you ever had your  
7 deposition taken before?

8 A. No, sir.

9 Q. Have you had the opportunity to talk to your  
10 counsel about the procedures we're going to follow?

11 A. I have.

12 Q. Okay. Let me just talk to you about a couple  
13 of things that I'd like to have an understanding with  
14 you about before the deposition begins. First of all,  
15 do you understand that the testimony you're giving  
16 here today is under oath just like you were testifying  
17 at the courthouse?

18 A. I do.

19 Q. If you don't understand a question, would you  
20 please tell me so that we will know that when  
21 you've -- at the end of the deposition the questions  
22 that you've answered you have understood? Is that  
23 agreeable?

24 A. It's agreeable.

25 Q. And the usual procedure, of course, is that

1 as you're doing, give an answer verbally as opposed to  
2 a nod so that the court reporter can take the answer  
3 down.

4 A. Okay.

5 Q. Okay? We had your deposition originally  
6 scheduled for last week.

7 A. That's correct.

8 Q. Prior to that time or prior to today have you  
9 met with your attorneys to prepare for the deposition?

10 A. Yes.

11 Q. Who did you meet with?

12 A. I met with Bill Harris and Steve Wilson.

13 Q. Anybody else?

14 A. I don't recall. They were the major players.

15 Q. When did you meet with them?

16 A. Monday of this week, Tuesday.

17 MR. HARRIS: Whoop. Would you read back  
18 the question? I'm very confused.

19 (Text read back)

20 MR. HARRIS: Your question is perfectly  
21 in order, and I misheard it as I was afraid I had.

22 MR. PINKERTON: Okay.

23 MR. HARRIS: And I apologize to both you  
24 and Mr. Rendleman for wasting your time.

25 MR. PINKERTON: No apologies due.

1 Q. (By Mr. Pinkerton) Approximately how long  
2 did you meet with your counsel on Monday?

3 A. I met with him for three hours.

4 Q. And on Tuesday how long did you meet with  
5 him?

6 A. Three hours.

7 Q. Last week, did you have an occasion to meet  
8 with him last week before the time that we had your  
9 deposition scheduled originally?

10 A. Yes.

11 Q. Okay. Who did you meet with last week prior  
12 to that scheduled time?

13 A. Okay. The meeting as I recall was at  
14 Printing Research. Bill Harris, Steve Wilson, Marty  
15 Sweeney, Dennis Griggs and Terry Britain.

16 Q. And were all --

17 A. And --

18 Q. Go ahead.

19 A. And Howard DeMoore. I'm sorry.

20 Q. Okay. Approximately how long was that  
21 meeting?

22 A. Oh, two hours.

23 Q. Did it go longer with other people?

24 A. I can't recall.

25 Q. So that entire group was together for

1 approximately two hours?

2 A. Correct.

3 Q. Did you meet with Mr. Harris or Mr. Wilson or  
4 Mr. Sweeney after that meeting of that group you just  
5 described?

6 A. Yes, sir.

7 Q. And for what period of time did you then meet  
8 with them?

9 A. Long -- maybe 20 minutes.

10 Q. Okay. Can you tell us the subjects that were  
11 discussed in that meeting at Printing Research --

12 MR. HARRIS: Objected to --

13 Q. -- at that time?

14 MR. HARRIS: -- as attorney/client  
15 privileged information and work product. And further,  
16 I instruct the witness not to answer.

17 Q. (By Mr. Pinkerton) Are you going to comply  
18 with your counsel's instruction, Mr. Rendleman, and  
19 not answer?

20 A. Yes, sir.

21 Q. Okay. Now, what day was that, Mr. Rendleman,  
22 that you met with that group last week?

23 A. I don't have a calendar. I would say it was  
24 last Wednesday. I might be off a day, but I think it  
25 was last Wednesday.



1 Q. Let's see. I think -- I think we had Bill  
2 Davis' deposition on Wednesday.

3 A. Did we?

4 Q. So if that's true --

5 A. Okay. If that's the case, then I'm wrong.  
6 It would be --

7 Q. If that --

8 A. Okay. It would be the day after.

9 Q. The day after?

10 A. Yes, sir.

11 Q. Okay.

12 A. I'm sorry.

13 Q. Now, how about before Mr. Davis' deposition  
14 earlier in the week, did you meet on Monday?

15 A. I don't recall.

16 Q. Okay. Prior to today you have sat through  
17 the testimony of Steve Baker?

18 A. Yes, sir.

19 Q. Scott Brown?

20 A. No, sir.

21 Q. That's correct. You were not there --

22 A. No.

23 Q. -- for Mr. Brown. You were here during the  
24 testimony of Mr. Garner?

25 A. Yes, sir.

1 Q. You were here and heard the testimony of Bill  
2 Davis?

3 A. Yes, sir.

4 Q. Okay. In these various sessions that you've  
5 had with counsel to prepare for the deposition, have  
6 there been documents that you have reviewed or  
7 discussed?

8 A. Yes.

9 Q. Are those documents any documents that  
10 haven't been produced to us in this litigation --

11 A. Not --

12 Q. -- to the best of your knowledge?

13 A. Not to my knowledge.

14 Q. Okay. What documents in particular do you  
15 recall that you looked at or discussed prior to today  
16 to prepare for the deposition?

17 A. I reviewed an internal memo. I reviewed  
18 various drawings that had been produced. I've  
19 reviewed several letters. That's the main -- main  
20 ones that I remember.

21 Q. What was the internal member -- excuse me.  
22 What was the internal memorandum about?

23 A. Very briefly it was one put together by our  
24 administrator, Ed Schaffler, was that memo that my  
25 name appeared on.

1 Q. Do you remember the date on it?

2 A. No, sir.

3 Q. And what was discussed in that memo?

4 A. Very briefly, it was a discussion about the  
5 Williamson project that we normally put a name with a  
6 project, be it Williamson or be it whoever it might be  
7 just so we're all on the same page. And it was  
8 addressing the project, some of the things that we had  
9 to accomplish at Williamson upon installation.

10 Q. And who prepared that memo?

11 A. Ed Schaffler.

12 Q. Do you -- were you one of the people it was  
13 addressed to?

14 A. Yes, sir.

15 Q. Okay. And that's a document you think that  
16 we've been produced in this litigation?

17 A. I don't positively know, but I would  
18 certainly think so.

19 Q. Okay. We'll check and see if we have got a  
20 copy of it.

21 MR. PINKERTON: If we haven't got a copy  
22 of it, Counsel, we would request that we be produced a  
23 copy of that memorandum.

24 MR. WILSON: It's been produced.

25 MR. PINKERTON: Has it? Have you got a

1 document number?

2 MR. WILSON: No.

3 Q. (By Mr. Pinkerton) What was the purpose for  
4 looking at that memorandum?

5 A. Say that again.

6 Q. What was your purpose in looking at that  
7 memorandum in preparation for the deposition?

8 A. To see if I could identify it.

9 Q. Okay. And could you?

10 A. I did not recall it.

11 Q. Okay. The different letters that you talked  
12 about reviewing, was this -- what correspondence was  
13 that?

14 A. The letter was, I think, an inquiry for a  
15 particular product. It may have been. One of the  
16 others was really a -- a report after printing, a  
17 printing report.

18 Q. And describe that for me. What -- it was a  
19 report in regard to what?

20 A. A test that was to be or had been run at our  
21 facility.

22 Q. For whom?

23 A. As I recall, it was for Williamson Printing.

24 Q. Do you remember the date on the report?

25 A. No, sir.

1 Q. Was it --

2 MR. HARRIS: Just a minute. Help me.

3 Who? You said some kind of print.

4 THE WITNESS: I said print?

5 MR. HARRIS: I may have --

6 THE WITNESS: Report.

7 MR. HARRIS: -- understood you.

8 THE WITNESS: I said report.

9 MR. HARRIS: Okay.

10 Q. (By Mr. Pinkerton) Printing report relating  
11 to a test for Williamson; is that correct?

12 A. That's correct.

13 Q. A test at PRI or at Williamson?

14 A. At PRI.

15 Q. Do you remember the date of the test?

16 A. No, sir.

17 Q. Do you recall if it was in December of '94?

18 A. I can't positively say, no.

19 Q. Okay. Who did you discuss that printing  
20 report with?

21 A. You mean --

22 Q. In the meeting.

23 A. In the meeting?

24 Q. Yes.

25 A. Steve Wilson.

1 Q. Okay. And what -- did you provide some  
2 information about the report to Mr. Wilson?

3 A. Yes.

4 Q. What was that?

5 A. I had never seen it before.

6 Q. Okay. Is that one of the documents that  
7 Mr. Baker had prepared? No, excuse me. Is that one  
8 of the documents that Mr. Bird had prepared?

9 A. Mr. Bird's name was on that one. Yes, sir.

10 Q. Okay. But this was -- this was the printing  
11 report that we're talking about and Mr. Bird's name  
12 was on there?

13 A. Yes, sir.

14 Q. Okay. Do you recall the date or the  
15 approximate date of the test that was referred to in  
16 the report?

17 A. Not positively.

18 Q. What's your best recollection of the date?

19 MR. HARRIS: You're instructed that you  
20 need not guess. If you can give a pretty good  
21 approximate date --

22 THE WITNESS: All right.

23 MR. HARRIS: -- cooperate. Otherwise --

24 A. November of '94.

25 Q. (By Mr. Pinkerton) And you had never seen

1 that before?

2 A. I had never seen it. That's correct.

3 Q. Okay. Do you know who was involved in that  
4 test that was referred to?

5 A. No, sir.

6 Q. Do you know if we've been produced that  
7 report in this litigation?

8 A. I would assume yes.

9 Q. Okay.

10 MR. PINKERTON: If not, Counsel, we'd  
11 also ask for a copy of that report.

12 MR. HARRIS: I certainly would oblige,  
13 if not. And the witness knows, of course, not to  
14 assume one way or another.

15 Q. (By Mr. Pinkerton) Any other letters,  
16 documents that you recall that you -- you were talking  
17 specifically about letters that you reviewed.

18 A. Not letters. That's all the letters.

19 Q. Various drawings?

20 A. Yes, sir.

21 Q. You've looked at the drawings. We've been  
22 produced a number of drawings. We're going to be  
23 talking about those today.

24 A. Okay.

25 Q. We have marked, Mr. Rendleman, as Exhibit

1 Rendleman 1 a document produced to us by your  
2 counsel.

3 MR. PINKERTON: And for the record, it's  
4 marked with PRI 01029 through 01031.

5 Q. (By Mr. Pinkerton) Can you identify  
6 Rendleman Exhibit 1 for us?

7 A. It's my resume.

8 Q. What period of time does it cover?

9 A. Covers from 1959 to the present.

10 Q. Well, now, I see that it looks like it goes  
11 to October 1991, Mr. Rendleman. Am I incorrect?

12 A. Okay. Well, I went to work for Printing  
13 Research following that date.

14 Q. Okay.

15 A. That's what I intended.

16 Q. So it goes from 1959 up until the time you  
17 went to work at Printing Research?

18 A. Correct.

19 Q. Okay. Can you tell us what formal education  
20 that you have had after high school?

21 A. I graduated with a BBA in business and a  
22 minor in engineering.

23 Q. Where was that, sir?

24 A. At University of Texas at Arlington.

25 Q. And when did you get that degree?

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1 A. In 1963.  
2 Q. And you say it was a UBA?  
3 A. BBA.  
4 Q. BBA. I'm sorry.  
5 A. Yes.  
6 Q. Bachelor of Arts with a minor in engineering?  
7 A. Engineering. Yes, sir.  
8 Q. Okay. And in regard to the engineering  
9 courses, what can you tell us about the engineering  
10 course work you took there?  
11 A. Oh, I took the beginning courses that they  
12 taught in algebra. Worked all the way up through  
13 physics and took calculus was the key ones.  
14 Q. Did you take any mechanical engineering  
15 courses?  
16 A. Yes.  
17 Q. What were those?  
18 A. Most were design related on drawing board,  
19 that type.  
20 Q. Were they drawing courses or actually  
21 mechanical engineering courses?  
22 A. It was mechanical engineering.  
23 Q. Mechanical engineering?  
24 A. Yeah.  
25 Q. And do you remember what those were? Can you

1 tell us the names of the courses?

2 A. Well, we had a beginning class. They had an  
3 intermediate class. And I don't recall the third, but  
4 I took four years.

5 Q. Four years of what?

6 A. Of mechanical engineering classes.

7 Q. And that was in connection with the  
8 minor that you got?

9 A. That's correct, yes.

10 Q. Okay. Have you got a copy of your transcript  
11 from the University of Arlington or UTA?

12 A. I don't have it.

13 Q. Not with you.

14 A. Oh, yeah, I have it.

15 Q. But you have one?

16 A. Oh, yes. Uh-huh.

17 Q. Okay. Okay. I'm going to ask that you  
18 produce to us a copy of that transcript --

19 A. Okay.

20 Q. -- that shows those courses that you took.

21 A. All right.

22 Q. Okay?

23 MR. PINKERTON: And ask that of his  
24 counsel.

25 MR. HARRIS: We will take that under

1 advisement.

2 MR. PINKERTON: Thank you.

3 Q. (By Mr. Pinkerton) Okay. So you -- were you  
4 working while you were going to school?

5 A. The summertime I worked while I went to  
6 school, yes.

7 Q. And after you graduated in 1963, looks like  
8 you went into the United States Army?

9 A. That is correct.

10 Q. Did you get drafted, or did you join up?

11 A. No. I -- when I enrolled at Arlington, I  
12 also enrolled in the Reserve Officer's Training Corps,  
13 commonly called ROTC, so that I could work towards  
14 a -- my commission upon graduation.

15 Q. Okay. And you were commissioned --

16 A. Second lieutenant.

17 Q. Okay. Second lieutenant. In what branch of  
18 the Army?

19 A. I was initially in the artillery.

20 Q. And then you went into active duty?

21 A. I did, yes.

22 Q. Okay. And you were on active duty for how  
23 long?

24 A. I was in for four years.

25 Q. And after you were discharged, did you move

1 back to Texas?

2 A. Yes, I did.

3 Q. And who did you go to work for?

4 A. Went to work for Dahlgren Manufacturing  
5 Company, a Dallas corporation.

6 Q. Okay. Your resume indicates that you worked  
7 for Dahlgren from 1967 to January of 1988; is that  
8 correct?

9 A. That is correct.

10 Q. Okay. Tell us what your primary job  
11 positions and responsibilities were at Dahlgren.

12 A. Upon my return -- or my joining Dahlgren, I  
13 went directly on the board doing design work as I was  
14 directed to do, to -- for product.

15 Q. Did you have occasion to design any products  
16 for Dahlgren?

17 A. Yes, I did.

18 Q. Which ones are those, sir?

19 A. Okay. The dampener, which is a very critical  
20 item in a printing press, is what I designed.

21 Q. And was this for a particular printing press  
22 or just any printing press?

23 A. Any printing press.

24 Q. Okay. Is that referred to here on your  
25 resume?

1 A. Let's see. Mechanical designer from '67  
2 through '72. It does appear.

3 Q. Okay. And so that's what you did during that  
4 time frame was design the dampener?

5 A. That's correct --

6 Q. Okay.

7 A. -- during that time.

8 Q. Who did you work with on that project at  
9 Dahlgren?

10 A. Individuals' names?

11 Q. Yes, uh-huh.

12 A. Jimmy Taylor was one.

13 Q. Okay.

14 A. Worked with Dave Douglas perhaps in some  
15 capacity as he was employed there, too. Basil Grant,  
16 B-a-s-i-l, Grant to recall a few. I haven't thought  
17 about a lot of these people lately. If you need more  
18 I could --

19 Q. That's fine. Just the one --

20 A. Okay.

21 Q. I'm sorry. Just the ones that you recall.

22 A. Those were key, yes.

23 Q. Okay. Who was your supervisor during that  
24 time period?

25 A. Jimmy Taylor.

1 Q. Okay. What other design work did you do  
2 while you worked at Dahlgren?

3 A. We worked on an inker.

4 Q. What did you do with respect to that inker?

5 A. Helped to design a new product from the very  
6 beginning to the end, a whole new concept and device.

7 Q. Did that become a product that was sold by  
8 Dahlgren?

9 A. No.

10 Q. Why not?

11 A. It had some shortcomings.

12 Q. Okay. So the product was designed, and then  
13 it was never introduced because of some problems?

14 A. Correct.

15 Q. What period of time did you work on that  
16 inker?

17 A. '73 perhaps into '74.

18 Q. Okay. What other design work did you do at  
19 Dahlgren?

20 A. I did tooling work as required and as we  
21 needed for our product.

22 Q. And what do you mean by tooling work?

23 A. Okay. Fixtures. Holding fixtures would be a  
24 typical example. For production work, big holding  
25 fixtures that would -- where we could put four or five

1 parts at a time on a plate and manufacture them.

2 Q. Anything else?

3 A. Uh-huh. A hydraulic unit for pressing  
4 journals into cores.

5 Q. Okay. Anything else?

6 A. I don't recall.

7 Q. Who was your supervisor after 1974 at  
8 Dahlgren?

9 A. After '74? I believe I reported to Harvey  
10 Dahlgren.

11 Q. Okay. And that's while you were doing this  
12 tooling work you reported to Mr. Dahlgren?

13 A. That is -- to my recollection, yes.

14 Q. Okay. What other work did you do at Dahlgren  
15 after you did this tooling work?

16 A. Okay. Eventually -- you mean during that  
17 same time frame or --

18 Q. Just from that time frame on, yes, sir.

19 A. I took over the manufacturing operation about  
20 that -- about '74, '75, along in that time frame.

21 Q. 1974 or 1975.

22 A. Five. Uh-huh.

23 Q. What was your title when you took over that  
24 manufacturing?

25 A. Initially I was plant manager, and I kept

1 that title.

2 Q. So you had been plant manager all along?

3 A. From '74?

4 Q. Yes.

5 A. Yes.

6 Q. Okay. So from '74 to '88 you had the title  
7 of plant manager?

8 A. That's correct.

9 Q. Okay. And your basic responsibilities, then,  
10 were what?

11 A. To schedule the product through the plant, to  
12 operate the machine shop through my foremen, to get it  
13 to the state to ship and ship it. I was responsible  
14 overall for all the operations that had happened in  
15 manufacturing.

16 Q. Did you do any other design work at Dahlgren  
17 other than what you've already told us about?

18 A. I redesigned a new plant that we eventually  
19 moved to, laid out the facility.

20 Q. Any other mechanical design work with respect  
21 to any printing equipment?

22 A. I worked on a printing press design.

23 Q. What did you do on that press?

24 A. I did the inking and dampening system.

25 Q. Approximately what time was that?



1 A. Perhaps '75-'76, I recall.

2 Q. Well, once again, was that on an existing  
3 press or was this --

4 A. No.

5 Q. -- on a new press?

6 A. This would be a new press.

7 Q. New press.

8 MR. HARRIS: Excuse me.

9 A. Uh-huh.

10 Q. (By Mr. Pinkerton) And --

11 MR. HARRIS: Let each other finish.

12 THE WITNESS: Oh, I'm sorry.

13 MR. HARRIS: That's mostly for you.

14 Q. (By Mr. Pinkerton) Makes Pam's job much  
15 easier if we --

16 A. Oh, okay. I can understand.

17 MR. HARRIS: It's hard for the  
18 reporter.

19 THE WITNESS: Sorry.

20 Q. (By Mr. Pinkerton) Did that printing press  
21 that you worked on become a product that was sold by  
22 Dahlgren?

23 A. It did not.

24 Q. And why not?

25 A. You need a description? It didn't have a

1 computer on it.

2 Q. Okay. Who did you work with on that  
3 particular project?

4 A. I worked with many people off and on.  
5 Everybody from Harvey Dahlgren. I worked with Jimmy  
6 Taylor. I worked with Jimmy Price and others. Those  
7 are the key players.

8 Q. Okay. Any other design work that you did at  
9 Dahlgren?

10 A. I don't recall any other.

11 Q. At the bottom of your description here on  
12 your resume, second page there --

13 A. Okay.

14 Q. -- you see there's the notation -- that's the  
15 right page. You've got it right in front of you.

16 A. Okay.

17 Q. Under Dahlgren it says, Responsible to  
18 design, detail and furnish installation drawings for  
19 the manufacture of printing equipment, incorporation  
20 the concept of a patented three roller motor driven  
21 system.

22 A. Uh-huh.

23 Q. What's that refer to?

24 A. Okay. That refers to the patented three  
25 rollers that patented Dahlgren manufacture -- Dahlgren

1 already had. We took that concept and adapted it to  
2 many, many different presses using the same general  
3 concept of a three roll system.

4 Q. What was that product sold under, what name?  
5 Do you know?

6 A. Dahlgren dampener is that -- was its best  
7 name that I remember.

8 Q. So the three roller system was a dampener  
9 system?

10 A. Yes, sir.

11 Q. Okay.

12 A. Uh-huh.

13 Q. And is that the dampener that you previously  
14 talked about working on before?

15 A. Yes, uh-huh.

16 Q. Okay. During the time that you were at  
17 Dahlgren, did Dahlgren have a retractable coating  
18 unit?

19 A. No, sir.

20 Q. Did they develop one later after you left?

21 A. I don't recall.

22 Q. You don't know. So as of today do you know  
23 whether or not Dahlgren has a retractable end of press  
24 coater that they offer for sale?

25 A. I don't know.

1 Q. You've never seen any brochures of Dahlgren  
2 that have a retractable coater unit?

3 A. No, sir.

4 Q. Okay. Are you -- or during the time that you  
5 were employed at Dahlgren, did Dahlgren use anilox  
6 rollers in any of its products?

7 A. It did.

8 Q. In what product did they use an anilox roller  
9 in?

10 A. On a coater.

11 Q. And what coater was that?

12 A. It was a fixed coater or an integrated  
13 coater.

14 Q. Did it have a name it was sold under?

15 A. I don't recall.

16 Q. Was it sold by Dahlgren?

17 A. Yes, it was.

18 Q. Who developed that coater to your knowledge?

19 A. I can't say.

20 Q. And what did you understand the purpose of  
21 that coater was?

22 A. To apply a printing -- a coating material to  
23 the blanket cylinder.

24 Q. Was it retractable?

25 A. If you define retractable as moving

1 approximately one inch, it was retractable.

2 Q. And did this one move one inch?

3 A. Approximately.

4 Q. Where did it move to and from?

5 A. It moved the anilox roll away from the  
6 blanket cylinder to form separation.

7 Q. So it would just move in and out of  
8 engagement?

9 A. Correct.

10 Q. Okay. And what was it -- what was its  
11 purpose as far as the anilox roller? What was the  
12 function of this particular coater?

13 A. To apply a coating material to the blanket.

14 Q. Was it a device that you could bolt onto the  
15 end of the press and use it to coat from the blanket  
16 cylinder?

17 A. Yes.

18 Q. Was that the way it was used?

19 A. Yes, uh-huh.

20 Q. Okay.

21 A. As I recall, yes.

22 Q. Okay. Is that the first -- or your exposure  
23 to that particular device, is that the first time that  
24 you had learned about anilox rollers?

25 A. That is correct, yes.

1 Q. Okay. And did you work on that product at  
2 all?

3 A. No.

4 Q. Who did work on that product at Dahlgren?

5 A. I can't say. I don't know.

6 Q. Okay. During the time that you worked at  
7 Dahlgren, were any patent applications filed on any of  
8 the work that you did?

9 A. No.

10 Q. Are you familiar with a product of Dahlgren  
11 where coating is performed on the impression cylinder?

12 A. Yes, I'm aware of it.

13 Q. What is that product?

14 A. It's a coater.

15 Q. Does it have a name or is it sold under any  
16 particular name that you know of?

17 A. I don't recall.

18 Q. Okay. When did you first have knowledge of  
19 that device?

20 A. I've never seen it. I have in conversation  
21 heard people talk about it.

22 Q. To the extent that you do know about that  
23 device, is it retractable?

24 A. It's fixed as I recall.

25 Q. So to the best of your recollection, that

1 device does not retract linearly?

2 A. Correct.

3 Q. Move into and out of engagement linearly?

4 A. That is correct.

5 Q. Okay. During the time that you worked for  
6 Dahlgren, did you learn about any type of retractable  
7 devices used on printing presses?

8 A. No.

9 Q. Okay. You left Dahlgren, according to your  
10 resume here, January 1988; is that correct?

11 A. That is correct.

12 Q. And what were the circumstances surrounding  
13 your leaving Dahlgren?

14 A. Mr. Dahlgren had passed away. The company  
15 had been sold. An opportunity came along, and I chose  
16 to change employment.

17 Q. And did you then go to work for Epic  
18 Products?

19 A. I did.

20 Q. And apparently you were with Epic for a short  
21 time.

22 A. That's correct.

23 Q. Looks like about ten months.

24 A. Yeah, that's correct.

25 Q. What did you do for Epic during those ten

1 months?'

2 A. I was the mechanical engineering manager and  
3 supervised I think about 14 people, draftsmen and  
4 designers, and worked on the schedule.

5 Q. Did you do any design work at Epic?

6 A. No.

7 Q. There is a notation here on your resume about  
8 work on a patented four roller lithographic printing  
9 unit. Can you describe that, please?

10 A. Very briefly it was a deviation of the  
11 Dahlgren dampener. It had a different drive so that  
12 it did not infringe with the Dahlgren patent. And it  
13 had a oscillating roll with it which became the fourth  
14 roller.

15 Q. Now, did Epic have a patent on that product  
16 before you arrived there?

17 A. Yes, sir.

18 Q. And did your work result in a modification to  
19 the device?

20 A. Say that again, sir.

21 Q. Did your work that you did that you talked  
22 about at Epic result in a modification or change in  
23 that device that they had?

24 A. No, it did not.

25 Q. Okay. And was any patent application filed



1 on any work that you did at Epic?

2 A. No, sir.

3 Q. What was the name of that product?

4 A. The delta system is what it was called.

5 Q. What were the circumstances surrounding your  
6 leaving Epic in December of '98?

7 A. I had a better offer made to me.

8 Q. Okay. And who did you go to work for after  
9 you left Epic?

10 A. It was a division of Rotation Dynamics, and  
11 its parent name was Advanced Graphics Technologies.

12 Q. What period of time were you with Advanced  
13 Graphics Technologies?

14 A. January of 1989 to April of 1990.

15 Q. And would you tell us, please, what your job  
16 positions were for Advanced Graphics and what your  
17 responsibilities were.

18 A. Yes, I can. As orders came in from the  
19 parent company, Rotation Dynamics, which was  
20 station -- was out of Chicago, I would look at the  
21 prints and evaluate them. And then when orders came  
22 in, I would build the product. It was all rollers.

23 Q. And your job position was what?

24 A. I was the operations manager. I supervised  
25 the machine shop.

1 Q. Did you do any mechanical design work while  
2 you were with Advanced Graphics?

3 A. I did.

4 Q. And what was that?

5 A. It was all tooling related for in-house work.

6 Q. Tooling of jigs and fixtures?

7 A. Jigs, fixtures, and drying equipment that --  
8 where we had a process that we put on a roller to dry  
9 it. Just a coating on the top of the roller that  
10 became part of it. Worked on that.

11 Q. So once again, if I understand you, it's  
12 dryer fixtures and jigs that would assist that drying  
13 process that you were talking about for rollers that  
14 you made?

15 A. For rollers that we made, yes.

16 Q. Okay. How did you happen to leave Advanced  
17 Graphics?

18 A. The communications business was getting real  
19 heavy in the Dallas area, and I had an opportunity to  
20 go into that field which was quite a departure. I  
21 wanted to get away a little bit from printing for a  
22 while, too.

23 Q. And so you left Advanced Graphics and went to  
24 work for who?

25 A. I went for -- excuse me -- DSC Communications

1 in Plano.

2 Q. And that was in May 1990?

3 A. May of '90, yes, sir, to October of '91.

4 Q. Okay. What position did you have at DSC?

5 A. I supervised 18 Asiatic assemblers.

6 Q. What were they assembling?

7 A. They were putting together an alarm module  
8 and back planes and tandem assemblies that funneled  
9 into a communication unit for the operation of  
10 telephones.

11 Q. Did you do any design work at DSC?

12 A. No, sir.

13 Q. And how did you happen to leave DSC?

14 A. They had a catastrophic failure in the field  
15 of communications that shut down about 25 percent of  
16 the United States simultaneously, East Coast to West,  
17 and it put everything that the company had on hold.  
18 And it took months to find out what happened, and  
19 their cash flow stopped. And during that time they  
20 were forced to lay people off to make ends meet. And  
21 I was a recent employee, and I got caught in that  
22 trap.

23 Q. Okay. So you basically got laid off, then,  
24 in October of '91?

25 A. Yes, sir.

1 Q. And at that point in time what did you do?

2 A. I looked around. Looked at the market and  
3 just did a little search on my own and called some  
4 people that were -- that I had worked with during that  
5 time frame.

6 Q. Did you go to work for anybody in '91?

7 A. I did not. For the rest of that year I did  
8 not.

9 Q. Okay. When did you next have employment with  
10 another company?

11 A. I had interviewed in January of '92, I think,  
12 with Printing Research. And shortly thereafter they  
13 hired me.

14 Q. Was it approximately January, then, of '92  
15 that you went to work for Printing --

16 A. That is correct.

17 Q. -- Research?

18 A. Uh-huh.

19 Q. And have you been with Printing Research ever  
20 since then?

21 A. That is correct.

22 Q. Okay. Now, prior to the time that you went  
23 to work for Printing Research -- excuse me. Is it  
24 correct that based on your background and experience  
25 that you had not had any experience in flexographic

1 printing prior to the time you went to work at  
2 Printing Research?

3 A. That is correct.

4 Q. Is it also correct that you didn't have any  
5 experience in offset lithographic printing?

6 A. That's pretty broad. Could you break that  
7 down for me a little bit?

8 Q. Okay. Well, you never worked in the actual  
9 printing -- offset lithographic printing industry

10 per se, did you?

11 A. I did not. Okay.

12 Q. Your only involvement in the offset  
13 lithographic printing business would have been with  
14 respect to various pieces of equipment that you've  
15 talked about that were used or could be used in an  
16 offset lithographic printing press?

17 A. That is correct.

18 Q. Okay. You had not, prior to the time you  
19 went to work for Printing Research, developed any  
20 printing processes or methods?

21 A. I had not.

22 Q. Did you have any experience with metallic  
23 inks?

24 A. No.

25 Q. Did you have any experience with coatings

1 that were applied by end of press coating units?

2 A. Other than what we have discussed you mean,  
3 sir?

4 Q. Well, coatings, I'm talking about  
5 specifically end of press coating -- coatings  
6 themselves, the coatings.

7 A. Okay. Only the one that you had asked me  
8 about earlier on the Epic.

9 Q. Okay. And at Epic what was that?

10 A. I'm sorry. Dahlgren. I didn't -- I'm  
11 sorry. At Dahlgren.

12 Q. At Dahlgren when we talked about the anilox  
13 roller at Dahlgren?

14 A. That's correct.

15 Q. Is that the one you're talking about?

16 A. Yes.

17 Q. And so what did you know about coatings from  
18 having worked at Dahlgren and known about that anilox  
19 roller?

20 A. Well, I just knew the basics of how it  
21 worked. It used -- and that was to the extent that I  
22 was aware.

23 Q. Okay. And what did you know about coatings  
24 with respect to that coater?

25 A. It was a clear coat at that particular time

1 frame to put on a printed sheet to enhance its  
2 quality.

3 Q. Okay. Did you know anything about the  
4 chemistry of inks or coatings at the time you went to  
5 work for Printing Research?

6 A. None whatsoever.

7 Q. Did you know anything about flexographic  
8 printing plates?

9 A. No.

10 Q. We've marked as Rendleman Exhibit 2 a copy of  
11 Williamson Printing Company's U.S. patent 5,370,976.  
12 And I'll hand you a copy of that.

13 Let me ask you to take a look at that  
14 patent, Mr. Rendleman, and just as a preliminary  
15 matter I can represent to you that this is the  
16 Williamson patent that is directed to the WIMS process  
17 which you've heard testimony about, I'm sure, in the  
18 other depositions. You heard testimony about the WIMS  
19 process, did you not?

20 A. Yes.

21 Q. And do you know that WIMS stands for  
22 Williamson Integrated Metallic System?

23 A. I've heard that.

24 Q. Okay. Rendleman Exhibit 2, which is the  
25 patent that covers that WIMS process, have you seen

1 that patent prior to today?

2 A. Seen it? Yes.

3 Q. Have you read it?

4 A. No, sir.

5 Q. You have heard, as you said, about the WIMS  
6 process; is that correct?

7 A. Yes.

8 Q. Okay. Approximately when did you first hear  
9 about the WIMS process?

10 A. Early '95, 1995.

11 Q. Early '95. And tell us the circumstances.

12 A. I may have heard it from discussions being  
13 around others is all.

14 Q. When you say "others," can you identify  
15 people that you might have learned about the WIMS  
16 process from?

17 MR. HARRIS: Objected to as misleading,  
18 absolutely contrary to the testimony. He didn't learn  
19 about the WIMS process. He's already testified to  
20 that.

21 MR. PINKERTON: He said that he has  
22 heard about the WIMS process.

23 MR. HARRIS: Heard is another matter,  
24 sir.

25 MR. PINKERTON: Is it?



1 MR. HARRIS: Yeah.

2 MR. PINKERTON: Okay. Well, let's ask  
3 him.

4 Q. (By Mr. Pinkerton) Who did you hear about  
5 the WIMS process from?

6 A. Steve Baker, John Bird.

7 Q. Okay. Can you tell us the circumstances at  
8 the time you heard about it?

9 A. I believe I just overheard conversations of  
10 which I did not get involved.

11 Q. Can you give us the gist of the conversations  
12 as best you recall?

13 A. Not -- not really, no.

14 Q. Did they say that Williamson had the WIM -- a  
15 WIMS process?

16 A. Yes.

17 Q. Did they tell you anything about that  
18 printing process at all?

19 A. I don't recall.

20 Q. Was there mention of improving the WIMS  
21 process?

22 A. I don't -- not that I recall.

23 Q. You don't have any recollection of it one way  
24 or another whether it happened or didn't happen?

25 A. That's correct.

1 Q. Okay. We've marked as defendant's -- or  
2 excuse me -- Rendleman Exhibit 3 a copy of  
3 Williamson's U.S. patent 5,630,363. And I'll hand you  
4 that, sir.

5 A. Okay.

6 Q. And I'll refer to that as the 363 patent.

7 A. Okay.

8 Q. The 363 patent as you can see up on the upper  
9 right-hand corner issued May 20, 1997?

10 A. Correct.

11 Q. You see that?

12 A. I do.

13 Q. Okay. Did you have occasion to see the 363  
14 patent in 1997?

15 A. 1997?

16 Q. Yes, sir. The year --

17 A. Yeah.

18 Q. -- it issued.

19 A. No.

20 Q. Did you have occasion to see this patent in  
21 1998?

22 A. No, sir.

23 Q. When was the first time that you saw the  
24 patent to the best of your recollection?

25 A. 1999 would be my best recollection on that.

1 Q. Do you recall the circumstances?

2 A. Only that it was a surprise.

3 Q. Do you recall where you were when you first  
4 saw the patent?

5 A. I would guess I was at work.

6 Q. Well, let's -- as counsel said, we're not --  
7 we don't want you to guess. Okay?

8 Do you recall the circumstances when you  
9 first saw the 363 patent?

10 A. I can't say who but somebody produced it.  
11 Whether they went to the patent office to get it or  
12 what, I don't know. But somebody at Printing Research  
13 had the patent.

14 Q. And were you provided a copy of it?

15 A. No, sir. No.

16 Q. Okay.

17 A. You mean then?

18 Q. At that time.

19 A. Oh, no, not at that time.

20 Q. But that's the first time you had heard of  
21 the 363 patent?

22 A. That's correct.

23 Q. Do you recall who that person was?

24 A. It's speculation, but I think it was  
25 Mr. Bird, or one other possibility would be John

1 Gardner -- I mean Steve Garner. I'm sorry.

2 Q. Was anything said to you at that time by  
3 Mr. Garner or Mr. Bird about the patent?

4 A. No, sir.

5 Q. How is it that you happen to recall seeing  
6 it?

7 A. Well, they provided it, whomever that  
8 individual had it, and that was the circumstances.

9 Q. Did you subsequently obtain a copy of the  
10 patent?

11 A. Eventually, yes.

12 Q. Approximately when was that?

13 A. Possibly midyear of '99. That's best  
14 estimate I could give you there.

15 Q. Do you know the circumstances pursuant to  
16 which you obtained the copy?

17 A. Not really, no.

18 Q. So do you recall one way or another whether  
19 someone gave you a copy?

20 A. Someone did give me a copy, and I don't  
21 remember who that was.

22 Q. After you got the copy did you read the  
23 patent?

24 A. Initially I scanned it. I didn't read it in  
25 its entirety in length, no.

1 Q. After scanning it what did you do with it?

2 A. I think I just set it down. You know, I  
3 was -- had no reason to further it.

4 Q. What's the next time that you had occasion to  
5 look at the patent after that?

6 A. I believe when this lawsuit was initiated.

7 Q. And after the lawsuit was initiated, did you  
8 then have the opportunity to read the patent?

9 A. It was provided. I did not pay it a whole  
10 lot of attention or read it in its entirety.

11 Q. Since that time have you?

12 A. Parts of it.

13 Q. So as of today you've read parts of the  
14 patent, but you haven't read the entire patent?

15 A. That is correct.

16 Q. Okay. In about let's say in January of  
17 1994 -- okay?

18 A. Okay.

19 Q. As of January of 1994, what was the extent of  
20 your knowledge in regard to obtaining patents?

21 A. Say that again, please, sir.

22 Q. In approximately January 1994, about two  
23 years after you had --

24 A. Okay.

25 Q. -- worked for Printing Research, I'm just

1 inquiring about your familiarity with the process of  
2 obtaining patents.

3 A. I had worked from time to time with our legal  
4 patent attorney.

5 Q. And which patent attorney you talking about?

6 A. Dennis Griggs.

7 Q. So you had worked with Mr. Griggs for about  
8 two years then?

9 A. Approximately, yes.

10 Q. And this was off and on?

11 A. It was, yes, off and on. That's correct.

12 Q. What were those occasions that you would have  
13 had occasion to work with Mr. Griggs on a patent  
14 matter?

15 A. On a infrared dryer.

16 Q. Prior to discussions with Mr. Griggs about  
17 the infrared dryer, had you had any experience with  
18 obtaining patents?

19 A. No, sir.

20 Q. So prior to the time that you came to work  
21 for Printing Research, you had never applied for a  
22 patent?

23 A. I had never applied for a patent.

24 Q. And you had never worked with anybody else in  
25 the company in terms of obtaining a patent?

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1 A. That is correct.

2 Q. Okay.

3 MR. PINKERTON: Let me ask the court  
4 reporter to mark U.S. patent 5,537,925 as Rendleman  
5 Exhibit 4.

6 (Exhibit 4 marked)

7 A. Yes, okay.

8 Q. (By Mr. Pinkerton) Can you identify  
9 Rendleman Exhibit 4, please?

10 A. I can.

11 Q. Go ahead and tell us what it is.

12 A. It's a patent on the infrared forced air  
13 dryer and extractor.

14 Q. And this is the patent, I guess, that  
15 resulted from discussions that you had with Mr. Griggs  
16 that you mentioned with respect to an infrared dryer?

17 A. Correct.

18 Q. Okay. So you notice this patent was filed on  
19 September the 3rd, 1993?

20 A. I see that. Yes, sir.

21 Q. And that's the first occasion that you had to  
22 file a patent application?

23 A. That's correct.

24 Q. This patent, is it directed to a product that  
25 was a commercial product that was sold by Printing

1 Research?

2 A. That is correct.

3 Q. And what was that product known as at

4 Printing Research?

5 A. As the forced air dryer, infrared.

6 Q. Forced air infrared dryer?

7 A. That's right. Yes, sir.

8 Q. And approximately when did that product first  
9 go on the market?

10 A. 1993.

11 Q. Is it still being sold today?

12 A. Yes, sir.

13 Q. The inventors on this patent are designated  
14 as Howard Secor, Ronald Rendleman, and Paul  
15 Copenhaver?

16 A. That's correct.

17 MR. HARRIS: I would like to interpose  
18 an objection in that this is entirely irrelevant, is  
19 not apt to lead to anything that is relevant or  
20 admissible, and is a waste of time.

21 Q. (By Mr. Pinkerton) With respect to those  
22 three gentlemen -- okay? -- including you --

23 A. Yes.

24 Q. -- Mr. Secor, Mr. Copenhaver, and yourself,  
25 can you tell us what you believe your contribution was



1 with respect to the invention covered by this patent?

2 MR. HARRIS: Objected to as entirely  
3 irrelevant and not apt to lead to anything that would  
4 be admissible or in any way relevant.

5 MR. SWEENEY: Excuse me, John, I have to  
6 clarify. You said "believe." What contribution you  
7 believe, you mean his understanding, right? So there  
8 is not also a legal conclusion objection?

9 MR. PINKERTON: It's just his belief  
10 based on his experience at that time.

11 MR. SWEENEY: Okay. Based on his  
12 understanding is what I'm asking.

13 MR. PINKERTON: Sure.

14 MR. SWEENEY: Okay. Then no objection  
15 on --

16 MR. HARRIS: Well, we all --

17 MR. SWEENEY: -- legal conclusion.

18 MR. HARRIS: -- know he's not a lawyer.  
19 You know that, don't you, Mr. Pinkerton?

20 MR. PINKERTON: I sure do.

21 MR. HARRIS: And you know that, don't  
22 you, Mr. Rendleman?

23 THE WITNESS: I sure do.

24 MR. HARRIS: So we have a layman  
25 answering this. Okay?

1 MR. PINKERTON: Sure.

2 THE WITNESS: Okay.

3 Q. (By Mr. Pinkerton) That's the only basis I'm  
4 asking this question, Mr. Rendleman.

5 A. Okay.

6 Q. Asking for your personal knowledge.

7 A. Okay.

8 Q. Okay?

9 MR. HARRIS: No, you're not asking for  
10 his personal knowledge. You're asking for a personal  
11 lay opinion from a man that knows nothing about  
12 patents in depth.

13 MR. PINKERTON: Asking for his personal  
14 knowledge, Mr. Harris.

15 Q. (By Mr. Pinkerton) And would you please  
16 answer based on your personal knowledge.

17 A. It's been some time here. Would you restate  
18 the question?

19 Q. What do you believe, Mr. Rendleman, was your  
20 contribution to the invention covered by U.S. patent  
21 5,537,925?

22 MR. HARRIS: Same objections.

23 A. It was a dryer head.

24 Q. (By Mr. Pinkerton) Would you identify the  
25 dryer head, please?

THE WITNESS: Sure.

1 A. I will. It's shown on figure 7 is the view.

2 Q. At the time that you began work that led to  
3 we'll call it the 925 patent -- okay?

4 A. Okay.

5 Q. -- did Printing Research have a dryer head  
6 for infrared dryers?

7 A. We did.

8 Q. And did you modify that in connection with  
9 your work that led to this patent?

10 A. No.

11 Q. So what did you do to the dryer head?

12 A. We started over --

13 Q. Okay.

14 A. -- from the beginning.

15 Q. And so this is a newly designed dryer head.

16 Is that what you're saying?

17 A. Yes, sir.

18 Q. And you designed what is shown here on  
19 figure 7?

20 A. That is correct.

21 Q. Okay. And what's the purpose of this drying  
22 head?

23 A. To dry a substrate following printing. I  
24 might add that inks and/or coatings.

25 Q. Okay. Now, with respect to this work that

1 you did, this particular design work, was this done on  
2 a CAD system?

3 A. No, sir.

4 Q. Just how was it done?

5 A. I did it -- I worked on this on a drawing  
6 board initially.

7 Q. Okay. So you did initial drawings?

8 A. Initial drawings on the drawing board, yes.

9 Q. And then what did you do?

10 A. At that time I would take my drawings and  
11 give them to a draftsman who would in turn put them on  
12 CAD. And during that time I began the learning curve  
13 of learning CAD. But I furnished him a full-scale  
14 drawing to him.

15 Q. And was this a CAD system that was in-house  
16 at Printing Research?

17 A. Yes, sir.

18 Q. And who was the CAD operator?

19 A. Pete Kelly.

20 Q. Is Mr. Kelly still the CAD operator today?

21 A. He is still a CAD operator. Yes.

22 Q. Okay.

23 A. He certainly is.

24 Q. He runs a CAD system at Printing Research?

25 A. He runs a CAD system.

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1 Q. Okay. So at this time you would have done  
2 drawings. You would have given them to Mr. Kelly. Is  
3 that his name?

4 A. He was one, yes. There was others I gave it  
5 to but primarily to him.

6 Q. Okay. And then what would they do with  
7 respect to the drawings on the CAD system?

8 A. Put them into a -- give them a part number,  
9 enter them in the system, begin LM's and sorts with  
10 the parts, with the pieces.

11 Q. And I'm sorry. Your nomenclature was LM's?

12 A. List of materials. Yes.

13 Q. Okay.

14 A. I'm sorry.

15 Q. Okay. So he would have put in a part number?

16 A. He would assign that, yes.

17 Q. Okay. And he would have begun a list of  
18 materials?

19 A. Began. Yes.

20 Q. Began.

21 A. Begun one.

22 Q. And so how then were the records of the  
23 individual drawings maintained in the CAD system?  
24 Were they by a part number?

25 A. By part number.

1 Q. Okay. And then that part number, as  
2 different parts were created they became part of the  
3 list of materials?

4 A. Yes.

5 Q. Is a list of materials what we also know in  
6 industry as a bill of materials?

7 A. I think that's a synonymous term.

8 Q. Okay.

9 A. Yes.

10 Q. It lists different parts that go into a  
11 product?

12 A. Yes.

13 Q. When CAD drawings were prepared, did they  
14 reference back to the part number?

15 A. Yes.

16 Q. That's typically --

17 A. Yes.

18 Q. -- the way they're done?

19 A. Uh-huh.

20 Q. They were done that way then?

21 A. Yes.

22 Q. Okay.

23 MR. HARRIS: Mr. Pinkerton.

24 MR. PINKERTON: Yes, sir.

25 MR. HARRIS: I think it's a tremendously

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1 good time to take a break.

2 MR. PINKERTON: All right.

3 THE VIDEOGRAPHER: We're off the video  
4 record, 11:03, tape one.

5 (Recess taken)

6 THE VIDEOGRAPHER: We're on the video  
7 record, 11:21, tape one.

8 Q. (By Mr. Pinkerton) Mr. Rendleman, going back  
9 to Exhibit 4, the 925 patent --

10 A. Uh-huh.

11 Q. -- I notice on the front of the patent that  
12 it is assigned to Mr. Howard W. DeMoore.

13 A. I see that.

14 Q. Is that correct?

15 A. That's correct.

16 Q. Can you tell me why this patent was assigned  
17 to Mr. DeMoore as opposed to Printing Research, the  
18 company that you worked for when you worked on this  
19 product?

20 A. I really don't know.

21 Q. At the time you went to work for Printing  
22 Research, did you enter into an employment agreement  
23 with Printing Research?

24 A. Yes.

25 Q. Is it a written employment agreement?

1 A. As I recall it is, yes, sir.

2 Q. Okay.

3 MR. PINKERTON: Counsel, we've asked for  
4 a copy of -- I know we've asked for an employment  
5 agreement of Mr. Rendleman with Printing Research. We  
6 haven't been produced that. I want to again ask for  
7 that.

8 MR. HARRIS: I would think we would have  
9 that.

10 THE WITNESS: Yeah, I would.

11 MR. HARRIS: I haven't seen it.

12 MR. WILSON: Do you know the document  
13 number request? I haven't seen --

14 MR. PINKERTON: I don't.

15 MR. WILSON: -- such a request.

16 MR. PINKERTON: I don't know. I'm sure  
17 it's in there.

18 MR. HARRIS: Now when you say it that  
19 way, it means I think it's in there.

20 MR. PINKERTON: Yeah. I think for sure  
21 it's in there.

22 MR. WILSON: Talking about the first  
23 document request?

24 MR. PINKERTON: Yeah.

25 MR. WILSON: Because I've just been

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1 looking at them this morning, and I'll look for you  
2 again.

3 MR. PINKERTON: Okay. Well, you didn't  
4 see the bill of materials in there either.

5 MR. WILSON: No. I do see the bill of  
6 materials.

7 MR. PINKERTON: I mean you didn't  
8 before.

9 MR. WILSON: Yeah.

10 MR. PINKERTON: So we've asked for that  
11 for a long time.

12 MR. WILSON: It's number 66. But not  
13 the employment agreement. I'll look again.

14 MR. HARRIS: The bill of materials for  
15 what?

16 MR. PINKERTON: For the --

17 THE WITNESS: Bill was out of the room  
18 during that time.

19 MR. PINKERTON: For the EZ interstation  
20 flexoprinter coater.

21 Q. (By Mr. Pinkerton) Have we got that, by the  
22 way?

23 A. I called the office after Sweeney and you  
24 talked, and --

25 Q. Right.

1       A.    -- Rick got ahold of the -- one of the  
2 designers, and he's preparing that. And it might be a  
3 while because he had to go through some of my records  
4 and I'm not there to help him.

5       Q.    Thank you.

6       A.    Yes.

7       Q.    We appreciate that.

8       A.    Okay.

9               MR. HARRIS: Would you like to be out  
10 there to help him?

11              THE WITNESS: Oh, not necessarily.

12       Q.    (By Mr. Pinkerton) We don't have your  
13 employment agreement here, but do you recall what the  
14 employment agreement says, if anything, about  
15 assigning inventions that you might make at Printing  
16 Research?

17       A.    I remember to the extent that anything that I  
18 design in conjunction with my normal duties is  
19 property of the company, and beyond that I don't  
20 remember too much about it. It's been six years or  
21 more, seven years.

22       Q.    So if it's property of the company, why -- I  
23 ask you again the question. Why is it assigned to  
24 Mr. DeMoore if it's property of the company?

25              MR. HARRIS: And that's objected to as

1 calling for speculation and calling for a legal  
2 analysis and as being a poor question to put when  
3 we've got agreement coming pretty soon as I heard.  
4 Defer your question.

5 MR. PINKERTON: We got a bill of  
6 materials coming. We've asked -- we haven't got a  
7 commitment to produce the employment agreement.

8 MR. HARRIS: Maybe we can get it, too.

9 MR. PINKERTON: But the question goes  
10 beyond that. Mr. Rendleman said that --

11 MR. HARRIS: I heard what Mr. --

12 MR. PINKERTON: Okay.

13 MR. HARRIS: -- Rendleman said. Please  
14 don't tell me.

15 MR. PINKERTON: Okay. Let's go beyond  
16 that then.

17 Q. (By Mr. Pinkerton) I ask the question  
18 again.

19 A. Ask it again. Okay.

20 Q. Why is the 925 patent assigned to Howard  
21 DeMoore as opposed to Printing Research, to the best  
22 of your knowledge?

23 A. I really don't know.

24 Q. Are you aware that other patents of -- or  
25 other inventions of employees of Printing Research

1 where a patent has been obtained, have been assigned  
2 to Mr. DeMoore?

3 A. I've seen some.

4 Q. Do you know why those patents are assigned to  
5 Mr. DeMoore as opposed to Printing Research?

6 A. Not really. The same reason that I talked  
7 about this one.

8 Q. And that's what reason, sir?

9 A. I assume that --

10 MR. HARRIS: Don't assume.

11 THE WITNESS: Assume. Okay. Sorry.

12 Q. (By Mr. Pinkerton) To the best of your  
13 knowledge, why are they assigned to Mr. DeMoore?

14 A. I really don't know.

15 Q. Let's go back to Exhibit 3, please. From  
16 your review and -- excuse me, review and reading of  
17 the 363 patent, Mr. Rendleman, what's your  
18 understanding about what the claimed invention of this  
19 patent is?

20 A. Well, what I recall, it's a process.

21 Q. It's a printing process?

22 A. A printing process.

23 Q. Okay. What do you recall about the process?

24 A. It's a coating process with inks.

25 Q. Is it your understanding that the patent, the

1 invention of the patent is directed to a process where  
2 flexographic printing is used upstream ahead of  
3 lithographic printing in an offset lithographic press?

4 A. From my reading I understand that.

5 Q. Okay. And for shorthand reference, I'm going  
6 to refer to that process throughout the deposition as  
7 the flexographic lithographic in-line process. Is  
8 that an appropriate description with you?

9 A. That's fine. Yes, sir.

10 Q. Okay. Might also call it just the  
11 flexographic lithographic process for short and not  
12 mention in-line. Okay?

13 A. That's fine.

14 Q. Okay. Take a look at the second page of the  
15 patent, please.

16 A. Okay.

17 Q. And you see there is figure 2? You see that?

18 A. Yes, sir.

19 Q. And do you see a schematic of a printing  
20 station depicted there as item 32?

21 A. I do.

22 Q. Okay. And you see also a retractable  
23 printing coating device also shown there as looks like  
24 item 43 overall? You see that?

25 A. I do.

1 Q. Okay. That retractable device, is that a  
2 retractable flexographic printing coating unit to the  
3 best of your knowledge?

4 A. To the best of my knowledge, yes.

5 Q. Okay. The device that is shown there, is  
6 that a device that -- that retractable device that you  
7 see in figure 2 --

8 A. Uh-huh.

9 Q. -- was that what became known as the EZ  
10 interstation flexographic printer coater of Printing  
11 Research?

12 A. That is correct.

13 Q. Okay. So I'm going to refer to that device  
14 throughout the deposition as the -- probably the EZ  
15 flexoprinter coater. Okay?

16 A. Okay.

17 Q. Was the flexographic printer coater there  
18 that we see in figure 2 made by Printing Research for  
19 Williamson Printing?

20 A. I don't know.

21 Q. Was an EZ interstation flexographic printer  
22 coater made and constructed for Printing Research --  
23 or by Printing Research for Williamson Printing?

24 A. That is correct.

25 Q. Okay. And that was at the request of

1 Williamson Printing?

2 A. I don't really know about that.

3 Q. Well, if it was made for Williamson Printing,  
4 to the best of your knowledge did Williamson printing  
5 request that it be made for Williamson?

6 MR. HARRIS: Objected to. He does not  
7 have to guess. He's already answered the question.

8 Q. (By Mr. Pinkerton) I'm not asking you to  
9 guess. I'm asking for your best --

10 A. Yeah. I don't recall --

11 Q. -- understanding.

12 A. -- that.

13 Q. Do you know the -- any of the circumstances  
14 pursuant to which the EZ interstation flexographic  
15 printer coater which was, in fact, installed at  
16 Williamson Printing?

17 MR. HARRIS: Objected to as compound and  
18 obscure.

19 MR. PINKERTON: Okay. I'll withdraw the  
20 question.

21 Q. (By Mr. Pinkerton) Were EZ interstation  
22 flexographic printer coaters made and installed by  
23 Printing Research at Williamson?

24 A. Yes, sir.

25 Q. Okay. Do you know how many?

1 A. Yes, sir.

2 Q. Okay. How many?

3 A. Three.

4 Q. Three. The first one, when was it installed?

5 A. Approximately mid May of 1995.

6 Q. And where was it installed?

7 A. It was installed on the L tower, the coating  
8 tower of a seven color Heidelberg CD press.

9 Q. You say mid May 1995. What do you have in  
10 the way of documents or any kind of records that  
11 identify that as the date of installation?

12 A. I have some prints that have similar dates on  
13 them.

14 Q. That have what dates?

15 A. Similar to that date. Prior to that date.  
16 I'll put it that way.

17 Q. Okay. What document would we look to to  
18 identify that date of May -- mid May 1995?

19 A. Are you referring to a specific print?

20 Q. Yes.

21 A. I cannot give you the part number, but I can  
22 identify and describe it.

23 Q. Okay. Would you, please.

24 A. It's a subplate that allowed us to bolt it  
25 onto the L tower.



1 Q. . And the subplate, does it have a date on it?

2 A. It will have a date on it. I don't recall  
3 that right here. But it does have a date. Yes, sir.

4 Q. Have you seen that subplate?

5 A. You mean the print?

6 Q. Yes.

7 A. I've seen the print, yes.

8 Q. Have you seen it recently?

9 A. I've seen it within the past 30 days.

10 Q. Okay.

11 A. Yes.

12 Q. And that's how you're able to identify this  
13 date?

14 A. Yeah. I can't nail the date dead on but very  
15 close to it.

16 Q. So the basis for you saying mid May 1995 is  
17 the print of this subplate?

18 A. Yes, sir.

19 Q. Okay.

20 MR. PINKERTON: Have we been produced  
21 that print, Counsel, to your knowledge?

22 MR. HARRIS: To my knowledge I have not  
23 the slightest idea.

24 MR. PINKERTON: Okay.

25 MR. HARRIS: But --

1 MR. PINKERTON: I don't remember --

2 MR. HARRIS: -- it may be that the  
3 gentleman down the table can answer the question.

4 MR. WILSON: I don't know either. I  
5 know --

6 MR. PINKERTON: Okay.

7 MR. WILSON: -- we produced you lots of  
8 prints, but whether that plate is on one of them or  
9 not. We'll look.

10 MR. PINKERTON: Okay. I will --

11 MR. WILSON: I've made a note here to.

12 MR. PINKERTON: We'll make a request for  
13 the production of that.

14 MR. HARRIS: Okay.

15 MR. PINKERTON: Okay.

16 MR. WILSON: Take it under advisement.

17 MR. PINKERTON: Excuse me?

18 MR. WILSON: Take it under advisement.

19 Q. (By Mr. Pinkerton) That device having been  
20 installed at Williamson, what were the circumstances  
21 that gave rise to Printing Research constructing that  
22 device for Williamson?

23 MR. HARRIS: Asked and answered.

24 Q. (By Mr. Pinkerton) You can answer.

25 A. I don't know the circumstances.

1 Q. Do you know who put in a request for  
2 Williamson to Printing Research to make that  
3 interstation unit that was installed on the L tower of  
4 the seven color press at Williamson?

5 A. No, sir.

6 Q. Do you -- for a product to be made at  
7 Printing Research and a custom -- was this a custom  
8 product for Williamson?

9 A. Not -- no, sir.

10 Q. Was it a product that was made for the seven  
11 color Heidelberg press at Williamson?

12 A. No, sir.

13 Q. Did you go to Williamson and make  
14 measurements of the Heidelberg press to get proper  
15 dimensions to size this EZ interstation flexographic  
16 printer coater that was installed on that press?

17 A. I did.

18 Q. What was the reason for going to get those  
19 dimensions?

20 A. I was instructed to.

21 Q. By whom?

22 A. My boss.

23 Q. Who?

24 A. Howard DeMoore.

25 Q. And when was that, sir?

1 A. Approximately the second week of March, 1995.

2 Q. What did you do?

3 A. I went to Williamson Printing on a weekend  
4 and just looked at the machine and sketched a few  
5 things and wrote down some dimensions on my first  
6 visit.

7 Q. What dimensions did you take?

8 A. I took the width of the -- between side  
9 frames. I took the overall height of the frame where  
10 it was going to be attached. The location holes. I  
11 plotted various holes that were in the press, so I'd  
12 know location of them if I had to use them in a -- to  
13 bolt the thing on. I took dimensions of some of the  
14 guarding around the unit to make sure I wouldn't have  
15 an interference.

16 Q. Did you take dimensions of the L tower that  
17 you mentioned?

18 A. I did.

19 Q. Did you take dimensions of the printing  
20 stations that were upstream of that?

21 A. No, sir.

22 Q. No dimensions at all were taken at that time  
23 of the printing unit?

24 A. I just looked at it, but beyond that I kept  
25 focused on the L tower.

1 Q. Okay. And why was that, sir? Why didn't you  
2 need dimensions for the printing -- printing stations  
3 themselves?

4 A. That wasn't the task at hand.

5 Q. Okay. Do you have records of those  
6 dimensions that you took?

7 A. No, sir.

8 Q. What happened to them?

9 A. The rough prints I threw away.

10 Q. And when did you do that?

11 A. After I had put them on CAD.

12 Q. Well, tell us what you did after you took  
13 those dimensions.

14 A. I looked at the configuration as we had it on  
15 our press at that time. And I compared views of the  
16 Williamson tower on that seven color after I drew it  
17 in on CAD, and brought them together so I could see  
18 where the major differences were in order to find out  
19 if I could make it do what I was asked to do to make  
20 it fit.

21 Q. And what were you asked to do?

22 A. To put that -- a unit that we had in our test  
23 laboratory on the L tower of the seven color press.

24 Q. And what was the unit that you had at that --  
25 that you're talking about?

1 A. We had constructed an interstation coater to  
2 test.

3 Q. Can you describe that, please?

4 A. The -- all of it?

5 Q. Yes.

6 A. I'll start with the head so we can identify  
7 the various aspects of it. The coater head was all  
8 but exactly what we had.

9 Q. Exactly what you previously had on other  
10 products?

11 A. That's correct.

12 Q. And so when you talk about the coater head,  
13 if we can relate it to figure 2 of the patent, for  
14 example, is that what you're talking about, figure --  
15 item 44, the coating head?

16 A. It appears to be -- it appears to be that.

17 Q. That was an existing head that had been used  
18 before --

19 A. That is --

20 Q. -- at Printing Research?

21 A. At Printing Research, yes.

22 Q. On what product?

23 A. On a -- the press? On a two color Heidelberg  
24 press.

25 Q. Was it used on a coater -- that's what I'm

1 asking you -- at Printing Research before.

2 A. On a coater or --

3 MR. HARRIS: Ask him to repeat the --

4 Q. (By Mr. Pinkerton) As a part --

5 MR. HARRIS: -- question.

6 Q. (By Mr. Pinkerton) As a part of a coater.

7 A. Oh, as a part. Yes.

8 Q. Yes. And was that the EZB coater?

9 A. That is correct.

10 Q. Were you involved in any work on the EZB  
11 coater?

12 A. Yes.

13 Q. What did you do on the EZB coater?

14 A. I refined another product that we had at  
15 Printing Research.

16 Q. Can you describe what you mean by that?

17 A. I refined the head. I used the same  
18 technology that Printing Research had done before I  
19 arrived and adapted it to the blanket cylinder.

20 Q. Okay. Let's -- let's go back here for a  
21 second.

22 MR. PINKERTON: Let's mark this the next  
23 exhibit.

24 Q. (By Mr. Pinkerton) Mr. Rendleman --

25 A. Yes.

1 Q. -- let me -- let me have those exhibits back,  
2 if you would, please.

3 A. Yeah.

4 MR. PINKERTON: We'll just change the --  
5 let's change this to make this guy -- here, make  
6 him -- make him Number 5.

7 MR. HARRIS: You got a 5 and a 6 now or  
8 6 and --

9 MR. PINKERTON: Yeah, hold on.

10 MR. HARRIS: -- 7?

11 MR. PINKERTON: Hold on. We're going to  
12 do 5, 6, 7. Hold on one second.

13 (Exhibits 5-7 marked)

14 MR. PINKERTON: Okay. For the record,  
15 Rendleman Exhibit 5 --

16 MR. SWEENEY: Excuse me, John. Do you  
17 have a copy of 6? We don't have 6.

18 MR. PINKERTON: Let me -- let me do 5  
19 first.

20 MR. SWEENEY: Okay. That's this one,  
21 isn't it?

22 MR. PINKERTON: That's the one you don't  
23 have. That's the one you don't have. That's the one  
24 you don't have. Hold on. I got a copy of it. Here  
25 it is. That's what you need right there.

TOP SECRET



1 MR. SWEENEY: All right. Thank you.

2 MR. PINKERTON: Okay. Rendleman 5 is  
3 W000123 through 126. Rendleman 6 is W000119 through  
4 122. And Rendleman 7 is W000581 through 584.

5 Q. (By Mr. Pinkerton) Okay. Mr. Rendleman, do  
6 you have Exhibit 5 in front of you?

7 A. I do.

8 Q. Can you tell us what that is, please?

9 A. This is the PBC which means plate blanket  
10 coater.

11 Q. It's a brochure --

12 A. Brochure.

13 Q. -- for the plate blanket coater?

14 A. That is correct, yes.

15 Q. And if you look at Page W000125, does it show  
16 a picture of the coater?

17 A. It does.

18 Q. When you went to work at Printing Research,  
19 is that a coater that was then in existence?

20 A. I'm not real sure.

21 Q. Okay. Did it come to be a product that was  
22 made and sold by Printing Research while you were  
23 there?

24 A. No, sir.

25 Q. It never was?

1 A. Never was.

2 Q. The plate blanket coater, PBC coater, was  
3 never made at Printing Research?

4 A. That is correct. It was never made at  
5 Printing Research.

6 Q. It was made by a supplier for Printing  
7 Research?

8 A. As I understand.

9 Q. And do you remember the name of the supplier?

10 A. I do.

11 Q. Would you tell us, please?

12 A. Efferetz Tool & Manufacturing as I believe  
13 it's styled.

14 Q. Okay. So you started to work in about  
15 January 1992 at Printing Research?

16 A. Correct.

17 Q. And do you recall sometime in 1992 or 1993  
18 when the PBC coater that you see in Exhibit 5 was sold  
19 at Printing Research?

20 A. If I may choose between those two dates, I  
21 will say 1993.

22 Q. That's fine.

23 A. Okay.

24 Q. So as of 1993, the PBC coater of Rendleman  
25 Exhibit 5 was a product that was sold by Printing

1 Research?

2 A. Yes, sir.

3 Q. That was an end of press coater?

4 A. That's correct.

5 Q. It was a three roll coater?

6 A. That is correct.

7 Q. It did not use an anilox roller?

8 A. That is correct.

9 Q. Did you have any -- do any work with respect  
10 to any aspect of the PBC coater?

11 A. I did.

12 Q. When did you do that?

13 A. I recall working on it late 1993.

14 Q. What work do you recall doing?

15 A. I revised the coater head.

16 Q. The coater head that we see here is a coater  
17 head that will engage either the plate cylinder or the  
18 blanket cylinder; is that correct?

19 A. That is correct.

20 Q. And it's retractable?

21 A. Appears to be retractable.

22 Q. And what kind of mechanism was used here to  
23 engage the roller to either the plate or blanket  
24 cylinder? How did you move it on impression and off  
25 impression?

1 A. Hydraulic cylinder.

2 Q. Hydraulic cylinder?

3 A. That's correct.

4 Q. And you call that -- is that an actuator? Is  
5 that what you call that?

6 A. It could be defined as an actuation. Yes,  
7 actuator.

8 Q. And does it lock into position once you move  
9 it into impression?

10 A. I don't recall it locking in.

11 Q. Okay. But in any event, it's an actuator  
12 that's used? It's a hydraulic --

13 A. Hydraulic.

14 Q. -- actuator?

15 A. Yes, sir. Hydraulic.

16 Q. Okay. Now, in 1993 you say that you did some  
17 work on the coating head of this coater?

18 A. That's correct.

19 Q. Would you tell us what you did?

20 A. I converted it over to an anilox application.

21 Q. Approximately when was that?

22 A. Maybe the third quarter of '93. I can't  
23 recall any closer than that.

24 Q. Okay. And what was the purpose of converting  
25 it to an anilox roller?

1 A. To improve the quality.

2 Q. In what respect?

3 A. To make it more user friendly.

4 Q. And when you say "user friendly," what do you  
5 mean?

6 A. Where an individual can operate it with  
7 minimum instruction.

8 Q. Okay. Where did you get the anilox roller?

9 A. It's a roller that I borrowed from a earlier  
10 patent that Printing Research had.

11 Q. And what patent is that? Do you remember?

12 A. I believe it was the 077 would be the last  
13 three numbers to identify that patent.

14 Q. And were there particular features about that  
15 anilox roller that you liked?

16 A. Yes, sir.

17 Q. What were they?

18 A. The closed head feature was the most  
19 outstanding.

20 Q. Closed feet -- the what?

21 A. The -- the head configuration, it was a --  
22 called a closed head -- not on this one.

23 Q. Think if you look at Exhibit 7, does  
24 Exhibit 7 show the anilox roller and the head you're  
25 talking about?

1 A. Yes, sir.

2 Q. And is that at the bottom of Page 582?

3 A. 582. That is correct.

4 Q. All right, sir. And you refer to that head  
5 as what?

6 A. Well, I called it the closed head to define  
7 the fact that there's a chamber around a portion of  
8 the anilox roll.

9 Q. Okay. Is that also something that's referred  
10 to as a closed fountain? You heard that term?

11 A. No, not really.

12 Q. Is it a chambered doctor system?

13 A. Chambered doctor is a fair description.

14 Q. Okay. In here it's referred to as a  
15 universal coating head; is that right?

16 A. How it's referred to --

17 Q. In the brochure?

18 A. That's what it says. Yes, sir.

19 Q. Right. So that's the anilox roller that  
20 you're talking about that you liked. And you modified  
21 the PBC roller -- or excuse me -- the PBC coater to  
22 use that coating head?

23 A. That --

24 Q. Is that correct?

25 A. That is correct, yes.

1 talked about?

2 A. Based on this picture, that's going to be  
3 some speculation. I don't want to get into that.

4 MR. HARRIS: Don't speculate.

5 A. I can't read this.

6 THE WITNESS: Sir?

7 MR. HARRIS: Don't speculate.

8 Q. (By Mr. Pinkerton) Well, it's a lousy  
9 picture. We'll have to get the -- get the original of  
10 it --

11 A. Okay.

12 Q. -- and ask you about it. But you see the  
13 configuration of the head?

14 A. I do.

15 Q. Okay. Again that head assembly, is that the  
16 head assembly that you created to use with the anilox  
17 roller?

18 A. From the view it appears to make that  
19 outline. If we're talking about the little arrow that  
20 follows below it?

21 Q. Yeah.

22 A. I'll agree to that. Yes, sir.

23 Q. Okay. So I mean, the head assembly is what  
24 we see outlined in white; is that correct?

25 A. That is correct.

1 Q. Now, what modifications did you make to the  
2 coating head assembly at that time?

3 A. I removed the entire PBC head, the three roll  
4 system.

5 Q. Okay.

6 A. That provided me an attachment point because  
7 it was bolted on. And I used the same attachment  
8 points, came up with the geometry to contact the  
9 blanket cylinder in order to clear the other  
10 obstructions that were in the press.

11 Q. Okay. Take a look at Exhibit 7 again.

12 A. Okay.

13 Q. And this is a black and white and it didn't  
14 reproduce very well, but look at Page 583.

15 A. Okay.

16 Q. The upper right-hand corner has got a figure  
17 which unfortunately is terribly reproduced.

18 A. I agree.

19 Q. But it says under it, The Super Blue EZ  
20 Blanket Coater is installed directly onto the delivery  
21 or coating/dummy unit of your press for applying any  
22 one of a number of aqueous or UV coatings or inks at  
23 the last print unit blanket cylinder.

24 Does that figure that we see up above  
25 there incorporate the modification that you just



1 Q. Okay. And so that head assembly was mounted  
2 on the arm that we see there?

3 A. Well, not -- not exactly. Similar.

4 Q. Okay. Tell me -- tell me what's the  
5 difference in a mounting of that head apparatus.  
6 Okay? Is that what we're calling it?

7 A. Uh-huh.

8 Q. How does it differ from what we saw on the  
9 other exhibit?

10 A. The other exhibit used a hydraulic cylinder,  
11 Printing Research's used pneumatics.

12 Q. To do what?

13 A. To actuate.

14 Q. Okay. You're talking about when you're  
15 bringing it on impression and off impression?

16 A. That is correct.

17 Q. Okay. So Printing Research at this time went  
18 to a pneumatic operation?

19 A. They had a pneumatic operation that I used.

20 Q. Okay. What I'm inquiring about now is this.  
21 The -- in Exhibit 5, the head assembly --

22 A. Exhibit 5? Get back to that one.

23 Q. Uh-huh.

24 A. Okay. Think I got it. Yeah. All right.

25 Q. The head assembly, I guess, works in some

1 kind of a tract so they can be extended laterally,  
2 horizontally?

3 A. Yes, sir.

4 Q. Okay. It appears to me that the -- the EZB,  
5 the EZ blanket coater shown in Exhibit 7 didn't do  
6 that; is that correct?

7 A. Say that again, sir.

8 Q. The PBC coater that you see on Exhibit 5 --

9 A. Okay.

10 Q. -- to move it into place it would extend  
11 horizontally?

12 A. That is correct.

13 Q. Okay. How did the PB -- excuse me. How did  
14 the EZB operate as compared to that?

15 A. It actuated a hanger with an air cylinder  
16 rather than the head moving in and out.

17 Q. Okay. So if I understand you, the head  
18 assembly that we see in the exhibit hung from that  
19 arm?

20 A. Correct.

21 Q. Is that correct?

22 A. That is correct.

23 Q. And was it free to move there? Would it --  
24 would it rock in that position?

25 A. I don't recall that.

1 Q. Okay. But any event, it would hang in that  
2 position. And then if you wanted to engage it with  
3 the blanket cylinder that's shown there, for  
4 example --

5 A. Uh-huh.

6 Q. I'm looking now again at Exhibit 7.

7 A. Exhibit -- oh, 7.

8 Q. Yeah, 7, that one. Okay?

9 A. Fine.

10 Q. You would lower the arm and, therefore, lower  
11 the head assembly?

12 A. Yes, sir.

13 Q. Correct?

14 A. That is correct.

15 Q. And if you then wanted to engage it with the  
16 blanket cylinder, what would you do? How did that  
17 operate?

18 A. It was pneumatically controlled through a  
19 solenoid.

20 Q. And what particular structures, then, would  
21 do the actual bringing it on impression? How would  
22 you do that?

23 A. There was a hanger that pivoted about a pin.  
24 To it was attached a screw, a fine screw that allowed  
25 you to adjust it to seek the pressure that you wanted

1 to attain to the blanket cylinder.

2 Q. Okay. Do you have a term for that structure,  
3 that apparatus you're talking about?

4 A. Just a -- I would identify it as a hanger, a  
5 pivot assembly.

6 Q. Okay. You familiar with the term "bell  
7 crank"?

8 A. I certainly am.

9 Q. Okay. Is that a bell crank that --

10 A. No.

11 Q. -- you're talking about?

12 A. No, sir.

13 Q. You didn't use a bell crank on this one?

14 A. No, sir. I did not.

15 Q. Okay. Now, you -- you did the drawings for  
16 the head assembly?

17 A. I did.

18 Q. And to the best of your knowledge, that was  
19 in 1993?

20 A. As I recall, yes.

21 Q. Okay. And take a look at Exhibit 6, if you  
22 would. We haven't looked at that.

23 A. Okay.

24 Q. Can you tell us what product is depicted in  
25 this brochure, if you know?

TEMP-90-96257-99

1       A.    This is the EZ coater.   Super Blue EZ coater  
2 as it was identified.

3       Q.    Was that a product that was being sold by  
4 Printing Research when you came to work for Printing  
5 Research in January of 1992?

6       A.    '92.   No.

7       Q.    Okay.   When did this product become a product  
8 of Printing Research to the best of your knowledge?

9       A.    Possibly midyear of '92.

10      Q.    Okay.   Did you do any work on it?

11      A.    No, sir.

12      Q.    Did it use the same coating head assembly  
13 that we see on Exhibit 7, that universal coating head?

14      A.    That is correct.

15      Q.    It did use that same head?

16      A.    Same head.

17      Q.    Okay.   Now, you say that head is patented.  
18 Do you know who is on that patent?

19      A.    I recall David Douglas' name on it.   There's  
20 certainly, as I recall, others.   I can't identify  
21 them.

22      Q.    Okay.   I have heard about one patent that was  
23 an anilox roller that used a brush.   Are you familiar  
24 with that?

25      A.    I am.

1 Q. Is that this head, or is that a different  
2 one?

3 A. Are you referring to the EZ when you ask me  
4 that question?

5 Q. Well, let's go ahead and answer with respect  
6 to that. Right. Did it use the brush?

7 A. Yes.

8 Q. Okay. And how about the Exhibit 7, what  
9 we've called this universal coating head that you see  
10 here on Page 582?

11 A. Uh-huh, yes, sir.

12 Q. Did it use that same brush?

13 A. It did. Yes, sir.

14 Q. Is the brush depicted in this drawing?

15 A. In the drawing on 582?

16 Q. Yes, sir.

17 A. No, sir, it's not.

18 Q. Okay.

19 A. I would prefer to examine a better view. It  
20 may be in the liquid drawn. But this picture here  
21 certainly doesn't identify that as such. It would  
22 hide it as this is drawn.

23 Q. And do you know whether or not the head which  
24 incorporated the anilox roller and the closed chamber  
25 that you've talked about that was used on the EZB

1 coater, did it use the brush as well as those other  
2 structures on the anilox roller?

3 A. Yes, sir.

4 Q. Okay. It always did to the best of your  
5 knowledge?

6 A. As I remember it, yes.

7 MR. PINKERTON: This is a good place to  
8 take a break for lunch.

9 THE VIDEOGRAPHER: We're off the video  
10 record, 12:03, tape one.

11 (Recess was taken)

12 THE VIDEOGRAPHER: We're on the video  
13 record, 1:35, tape two.

14 Q. (By Mr. Pinkerton) Mr. Rendleman, go back  
15 and tell us, if you would, please, the various titles  
16 and positions you've had at Printing Research since  
17 you started in January of '92 up till to date.

18 A. First project was to evaluate the Efferetz  
19 coater in its entirety, looking at it from the  
20 standpoint of possibly producing it.

21 Q. I really want the job titles --

22 A. Oh, okay.

23 Q. -- and positions, not projects.

24 A. Just job titles?

25 Q. Job titles.

1       A.   Well, at that point I didn't have a title. I  
2 was hired as a consultant at that particular time -- I  
3 guess you could call it that -- to evaluate that  
4 system. I was not direct right then. Following that  
5 I was a mechanical designer under the direction of  
6 Dave Douglas to design the dryer that we spoke of  
7 earlier this day.

8       Q.   The infrared dryer?

9       A.   Yes, sir. Infrared dryer.

10      Q.   And approximately what time period does that  
11 take us through?

12      A.   Roughly 1992, end of 1992.

13      Q.   Did your position, title, or responsibilities  
14 change then?

15      A.   I think I would have been called a mechanical  
16 designer at that time. I wasn't addressed as that,  
17 but I believe I would have been called a mechanical  
18 designer.

19      Q.   So your title and position didn't change  
20 then?

21      A.   That's --

22      Q.   You continued as a mechanical designer?

23      A.   That is correct.

24      Q.   Have you always been a mechanical designer --

25      A.   No.



1 Q. -- then. Okay. When did your job title or  
2 position or responsibilities change?

3 A. When I was given a dual role -- dual role  
4 responsibility.

5 Q. And what was the dual roles, and what was the  
6 titles?

7 A. I managed the mechanical production for all  
8 the needs in the plant for things be made out of the  
9 machine shop. I had that title. And I also did  
10 design work.

11 Q. So you were manager of mechanical production?

12 A. Yes.

13 Q. Okay. And you did design work. Were there  
14 titles associated with that?

15 A. Not that I recall, no.

16 Q. Okay. And are we talking starting in '93  
17 when you had those dual roles?

18 A. That is -- yes, sir.

19 Q. Okay. And then from '93 up until to date  
20 have those job positions or duties changed?

21 A. They have. Approximately a year ago they  
22 gave me the position of production control.

23 Q. 1999?

24 A. 1999.

25 Q. And what do you mean by production control?

1       A.    I put into work all the mechanical items that  
2 the company needs to satisfy their product line.

3       Q.    Can you describe what you mean by that?

4       A.    In the case of a dryer, an example would be  
5 something as simple as a bracket that has to be made  
6 out of a material, steel material generally. I put  
7 that into work and schedule it. On the other side,  
8 the Super Blue requirement, we put into work various  
9 things that they have a need for on that side and  
10 they're somewhat similar, things that are generally  
11 made in a machine shop.

12       Q.    In the period of 1994 and 1995 who was your  
13 supervisor?

14       A.    At that time it was Dave Douglas.

15       Q.    In both of those years?

16       A.    Yes.

17       Q.    And what was Mr. Douglas' title at that time?

18       A.    He was vice president of operations, I  
19 believe.

20       Q.    VP of operations. And you then had this dual  
21 role at that time?

22       A.    This is correct.

23       Q.    Okay. So your day-to-day instructions were  
24 given to you by Mr. Douglas?

25       A.    Not day to day.

1 Q. What -- what role did Mr. Douglas have then  
2 with respect to you?

3 A. We had weekly meetings and get our  
4 instructions at that time by schedule, and then we  
5 take the schedule and do our own thing with it.

6 Q. You would have weekly meetings with  
7 Mr. Douglas?

8 A. This is correct.

9 Q. And others?

10 A. Yes.

11 Q. In 1994, 1995, in that time period, would you  
12 have met also with John Bird in those meetings?

13 A. No, sir.

14 Q. You did not meet with Mr. Bird in those --

15 A. I did not --

16 Q. -- meetings?

17 A. -- meet with Mr. Bird.

18 Q. Okay. In 1994 or 1995, either one?

19 A. I did not meet with him.

20 Q. Right. I'm talking about these regularly --

21 A. Oh, no.

22 Q. -- regular meetings that you're talking  
23 about?

24 A. If you're talking meeting, none.

25 Q. Okay. Did you have any meetings with

1 Mr. Bird in 1994?

2 A. Not that I recall.

3 Q. Any meetings with Mr. Bird in 1995?

4 A. Yes.

5 Q. Okay. What did those relate to?

6 A. That was a meeting at Williamson. Had to do  
7 with scheduling one of the coater units.

8 Q. Which one?

9 A. As I recall, it was the number 1 unit on  
10 press -- the six color press for the interstation  
11 unit.

12 Q. Approximately when -- when in '95 was that  
13 meeting?

14 A. That would have been approximately  
15 September -- between September 15th and October 15th.

16 Q. Of 1995?

17 A. Yes, sir.

18 Q. Okay. Did you keep calendars in 1994 and  
19 1995?

20 A. 1994, '95 I kept a sketchy calendar. Yes,  
21 sir.

22 Q. And do you still have that today?

23 A. I do.

24 Q. Okay. We're going to request production of  
25 that. I don't think we've formally done that before

1 now, but we will ask for that.

2 Do you still have that calendar there in  
3 your desk, or is it at home?

4 A. It's neither place.

5 Q. Where is it?

6 A. It's in the hands of the attorney.

7 Q. Oh, okay. They already have it. Okay. We  
8 were produced a -- boy, excuse me. We were produced  
9 portions of a calendar. I guess I'll show it to you.

10 A. Okay.

11 Q. See if you can recognize this. For the  
12 record, these are production numbers PRI 00959 through  
13 01009.

14 Do you recognize whose calendar that is?

15 A. I certainly do.

16 Q. Is that yours?

17 A. Yes, sir.

18 Q. Okay. Good. We've already got it then.

19 A. Yeah.

20 Q. All right, sir. Let's go ahead and mark that  
21 as an exhibit.

22 MR. PINKERTON: What's the next exhibit?

23 A. 7 --

24 Q. (By Mr. Pinkerton) Exhibit 8?

25 A. Yes.

1 (Exhibit 8 marked)

2 MR. PINKERTON: And unfortunately we  
3 don't have other copies of that. I didn't make any  
4 because I didn't know whose calendar that was.

5 MR. HARRIS: Well, I'll just lean way  
6 over.

7 MR. PINKERTON: Yeah.

8 Q. (By Mr. Pinkerton) Are there dates in that  
9 calendar that are relevant to any work that you did on  
10 the EZ interstation flexographic printer coater for  
11 Williamson?

12 A. I have come to one. Do you want me to  
13 necessarily go through all of them at this time?

14 Q. Yeah. Let's go ahead. Just --

15 A. Scan them?

16 Q. No. Go ahead and go through each one. Call  
17 out the -- the production number at the bottom in the  
18 right-hand corner.

19 A. PRI 00977.

20 Q. And what -- go ahead and tell us about each  
21 entry as you get to it. Let's just go one by one.  
22 What does that entry reflect?

23 A. A meeting that was to be held at PRI,  
24 9:30 a.m., with a Dennis Griggs.

25 Q. And what day is that, sir?

1 A. That was on Thursday, July 7th, 1994.

2 Q. July 7, 1994?

3 A. '94. Yes, sir.

4 Q. Was that meeting held?

5 A. It was held.

6 Q. Who was attending it -- who attended that  
7 meeting?

8 A. Besides myself, Howard DeMoore. We had  
9 Howard Secor, Dennis Griggs. We had John Bird. And I  
10 think that's -- that's all I can recall at this very  
11 instant. I think that was all that attended.

12 Q. Who called the meeting?

13 A. Dennis Griggs had called me on the phone and  
14 asked to get together on that date.

15 Q. In regard to what subject?

16 A. The prints, engineering prints that we were  
17 gonna review, as well as some of the patent work that  
18 was -- had been ongoing.

19 Q. Did those prints relate at all to the EZ  
20 interstation flexoprinter coater?

21 A. Yes, sir, they did.

22 Q. How did they relate?

23 A. We had a number of prints that we reviewed in  
24 kind of beginning formation work. It wasn't any  
25 formal drawing or anything like that as I recall.

1 They were -- that's all.

2 Q. How did Mr. Griggs know about these prints to  
3 call you and set up a meeting?

4 A. Well, we had been in discussion about a  
5 patent, so that's basically how.

6 Q. You had been in discussions with who?

7 A. With Dennis Griggs.

8 Q. And just Mr. Griggs, you. Anybody else?

9 A. Well, those same people, Howard DeMoore  
10 attended, as well as John Bird would attend some of  
11 those when he was in town.

12 Q. Okay.

13 A. And on-call were Howard Secor and Terry  
14 Britain.

15 Q. Now, did Mr. Secor work at Printing Research  
16 at that time?

17 A. That is correct.

18 Q. Is he still there now?

19 A. No, sir, he's not.

20 Q. The other person, Mr. Britain, did he work at  
21 Printing Research then?

22 A. Yes, he did.

23 Q. Does he now?

24 A. No, sir.

25 Q. May I see the exhibit, please?



1 A. (Witness complied.)

2 Q. So your entry for July 7 says Dennis,  
3 9:30 a.m.?

4 A. That's correct.

5 Q. Okay. Tell me what was discussed at that  
6 meeting with Mr. Griggs.

7 A. The discussion was ongoing relative to patent  
8 preparation for our coater.

9 Q. And when you say "our coater," what coater --

10 A. Print --

11 Q. -- are you talking about --

12 A. Printing Research's coater.

13 Q. Now, is that the EZB coater?

14 A. Not necessarily.

15 Q. Well, what prints -- what prints did you have  
16 at that time of any coater?

17 A. I had -- I had the side frames of a previous  
18 coater. It was --

19 Q. Which one was that?

20 A. It was called a HRC, Heidelberg Rendleman  
21 coater.

22 Q. Okay.

23 A. And beyond that I don't recall.

24 Q. You had the side frames. And describe the  
25 side frames that you had.

1 A. I don't follow that exactly. I mean --

2 Q. I'm sorry. That's a fair question -- fair  
3 clarification. You said side frames.

4 A. Okay. Oh.

5 Q. Side frames of what?

6 A. Okay. I'm sorry. Side frames of the coater.

7 Q. Of the coater?

8 A. EZ coater. EBZ.

9 Q. And we're talking of the coater head  
10 assembly?

11 A. Specifically that is correct, yes.

12 Q. That's what you had?

13 A. Coater head.

14 Q. All right. I assume we've been produced  
15 those drawings?

16 A. I would assume so. I may need a little help  
17 here.

18 Q. Okay. I'll let you take a look at the  
19 drawings that we do have, and you can tell me if you  
20 can find those drawings. Okay?

21 MR. PINKERTON: And, Counsel, for the  
22 record I'm assuming that you're waiving privilege, the  
23 attorney/client privilege with respect to these  
24 communications with Mr. Griggs? There's no reason --

25 MR. HARRIS: Yes. Back in the period

1 before this suit started, anything in that period with  
2 Mr. Griggs that could remotely relate to this, we  
3 would agree that we do intend to waive that privilege.

4 MR. PINKERTON: Okay. Can we be  
5 specific about the subject matters and the time  
6 periods that you're waiving privilege? Because I  
7 don't want to invade your privilege in any respect,  
8 but I do want to be clear about the extent --

9 MR. HARRIS: What about things -- give  
10 you an example. Things like the heater that was  
11 described earlier wouldn't seem to me to be very  
12 relevant as far as you having drawings of it is  
13 concerned. Things that don't really appear to be in  
14 this litigation. The various -- how about looking at  
15 it this way? Let's do it by year. '94 and '95 maybe,  
16 something like that.

17 MR. PINKERTON: Okay. We'll work --

18 MR. HARRIS: If you would accept that.

19 MR. PINKERTON: We'll work with that for  
20 starters.

21 MR. HARRIS: Okay. Well, it won't  
22 constitute a waiver. If you have a question beyond  
23 '95, we'll all take it up anew. Is that correct?

24 MR. PINKERTON: That's what I understand  
25 you're saying.

1 MR. HARRIS: Yeah.

2 MR. PINKERTON: It's your waiver, and  
3 I'm just trying to be clear about the parameters of  
4 it. Okay?

5 MR. HARRIS: Well, the parameters of it  
6 is I won't waive for the moment at all if you're going  
7 to be hardheaded about it.

8 MR. PINKERTON: Well, I didn't intend to  
9 be hardheaded, and I don't think I am being.

10 MR. HARRIS: I never found you trying to  
11 be hardheaded --

12 MR. PINKERTON: I don't think I --

13 MR. HARRIS: -- but it sounds that way  
14 here.

15 MR. PINKERTON: I don't think I am  
16 being. No. It's -- I'm just trying to get your  
17 clarification of it. And you either waive the  
18 privilege or you're not.

19 MR. HARRIS: Well, we're going to waive  
20 the privilege to the extent that the law constitutes  
21 it being a waiver.

22 MR. PINKERTON: Okay.

23 MR. HARRIS: And we're not going to  
24 waive it any further.

25 MR. PINKERTON: Okay.

THE WORTH REPORT

1 MR. HARRIS: I gave you an opportunity  
2 for those years if you like them.

3 MR. PINKERTON: Thank you.

4 Q. (By Mr. Pinkerton) Mr. Rendleman, take a  
5 look at a group of documents that we've got here. And  
6 once again, I think these are in order, PRI 01145  
7 through 01178.

8 A. I will.

9 Q. Tell me if those are any of the drawings that  
10 you would have mentioned or discussed with Mr. Griggs  
11 back in July of 1994.

12 A. (Witness complied.)

13 Q. Have you identified one or more drawings  
14 there?

15 A. I've identified one drawing only of the side  
16 frame.

17 Q. All right, sir. Can you identify that for  
18 the record for us, please?

19 A. Yes, I can. Just a minute. It's called --  
20 at this time it's called PBEZ 1 side frame gear side  
21 of the PBEZ coater. And it's date --

22 Q. All right. Let's mark that as the next  
23 exhibit.

24 (Exhibit 9 marked)

25 Q. (By Mr. Pinkerton) Could you read that

1 date? Oh, I see. Someone has -- someone has marked  
2 on here 6-5-92, June 5, '92; is that correct?

3 A. As I recall too -- yes, sir, that is  
4 correct. The following page might have a blowup.  
5 Might have of that -- no, not here. Yeah, of that  
6 page to verify that.

7 Q. You want to check that, please?

8 A. I can.

9 Q. This was number 1151.

10 A. Well, there appears to be an opposite side,  
11 but the date is not blown up. I thought maybe it  
12 might be, but it's not blown up on there. So that --

13 Q. So there are two sides and these two -- let's  
14 mark that as the next one.

15 (Exhibit 10 marked)

16 Q. (By Mr. Pinkerton) Okay. And then take a  
17 look at these two drawings as well, Mr. Rendleman.  
18 Can you identify those drawings that we just gave you?

19 A. They appear to be the same.

20 Q. Yeah. If you would, take a look and see if  
21 they match up with exhibits that we've marked as --

22 A. Okay.

23 Q. -- Exhibits 9 and 10 by document number --

24 A. Oh, by document?

25 Q. -- if you can.

EXHIBIT 10

1 MR. HARRIS: Are they from left to  
2 right.

3 THE WITNESS: Yes, they are left and  
4 right. This one goes with this one. Okay. That's  
5 the blown up that I was looking for. Okay. Still  
6 hard to read.

7 A. These do go with these documents. Yes, sir,  
8 both.

9 Q. (By Mr. Pinkerton) Can you match them up by  
10 the production numbers for us, please?

11 A. Okay.

12 Q. Exhibit 9, what drawing is the same as that  
13 that you have in your hand there?

14 A. PRI 01152 is the same as PRI 01126.

15 Q. Okay. Is that the left side or the right  
16 side?

17 A. This particular one is the left side -- is  
18 the operator side. Let's identify it that way.

19 Q. All right.

20 A. Operator side. Okay. The other frame is  
21 identified by PRI 01151 and PRI 01125.

22 Q. And what's the opposite of the operator side?

23 A. The gear side.

24 Q. And I'll make you a deal here. I'll let you  
25 take 9 and 10. Then I'll take a look at these other

1 ones.

2 MR. HARRIS: Kind of deal is that?

3 MR. PINKERTON: Maybe.

4 Q. (By Mr. Pinkerton) These bear the name of  
5 J. Chumley.

6 A. Yes.

7 Q. Is he the person that drew them?

8 A. He did.

9 Q. And who is Mr. Chumley?

10 A. He's a -- at the time was a design engineer  
11 for Printing Research.

12 Q. And is he still with Printing Research?

13 A. Yes, he is.

14 Q. What's he do now?

15 A. He manages the engineering department.

16 Q. Okay. And this is marked PBEZ coater?

17 A. Right.

18 Q. You see that designation?

19 A. Yes, I do.

20 Q. And you've got -- this date is June of 1992?

21 A. Uh-huh.

22 Q. And the ones that you have, the dates, is  
23 that also June 1992?

24 A. June 5th on these two. They obviously  
25 weren't drawn exactly on the same day.



1 Q. Okay. June 5th of --

2 A. Of '92, yes.

3 Q. -- 1992. Okay. And this is about the time  
4 that you were working on the modification of the PBC  
5 coater to convert it into an anilox roller --

6 A. That's correct.

7 Q. -- correct?

8 A. Yes, sir.

9 Q. Is that what these are side frames for?

10 A. Those frames were for that modification.

11 Q. Okay.

12 A. Excuse me.

13 Q. So where on here is the attachment to the  
14 arm? Does it have -- does this show the -- where it  
15 attaches to the arm or not?

16 A. If I remember correctly, it's hole number 7  
17 and hole number 8. And I don't know if yours is  
18 marked the same way or not. It's a phantom hole.  
19 It's a phantom circle drawn there near the top.

20 Q. Yeah.

21 A. Okay. Those two, they appear to be the  
22 bolt-on points.

23 Q. Okay. And then on the other side it would  
24 be -- well, it's 7 and 8 there also.

25 A. Okay.

1 Q. Is that right?

2 A. That's correct.

3 Q. And the anilox roller then, where would it  
4 mount?

5 A. Okay. It would mount where the two holes  
6 come into the side --

7 Q. Right.

8 A. -- with a little pocket that's cut out in  
9 that area.

10 Q. And can you identify that on the drawing,  
11 please? You might want to just take and mark it with  
12 your pen or a pen, if you would, please.

13 A. Okay.

14 Q. Maybe just you want to draw an arrow or you  
15 want to circle it? What's the best way to do it?

16 A. Why don't I just circle that area?

17 Q. Okay.

18 A. (Witness complied.)

19 Q. And you want to circle the other one as well?

20 A. (Witness complied.)

21 Q. Okay, great.

22 A. Okay. Here we go.

23 Q. Now, these -- these documents don't say  
24 anything about an HRC coater, do they?

25 A. No, sir.

1 Q. Out of the stack of documents that you found,  
2 did you find any documents that related to what you  
3 said was an HRC coater?

4 A. I would have to review that to be exact --

5 Q. Okay.

6 A. -- again. You wish me to remove the ones I  
7 find out of this or leave --

8 Q. Please.

9 A. Leave them? Okay.

10 Q. Anything that relates to the HRC coater.

11 A. All right. I think that's -- after  
12 examination most of these do appear, so I'm going to  
13 put these back in where I found them. Eight there --  
14 I think all identified, but possibly one doesn't have  
15 HRC written at the bottom.

16 Q. Okay. So they all -- they all relate --

17 A. Yeah.

18 Q. -- to an HRC?

19 A. Yeah, yeah. There may be one that's not. If  
20 you want me to pull it out I can, but I'm --

21 Q. Okay.

22 A. -- not a hundred percent sure.

23 Q. Okay. So the HR coater that you mentioned,  
24 those initials stand -- the HRC, I guess. HRC?

25 A. Yes.

1 Q. You designate -- what does that designation  
2 stand for?

3 A. Heidelberg Rendleman coater.

4 Q. Heidelberg Rendleman coater?

5 A. Right.

6 Q. And who at Printing Research did any work on  
7 the mechanical design of the Heidelberg Rendleman  
8 coater?

9 A. Throughout -- throughout its entirety?

10 Q. Yes.

11 A. John Ahler would have worked. Pete Kelly and  
12 myself that I can recall right now.

13 Q. Mr. Ahler and Mr. Kelly weren't in the  
14 meetings with Mr. Griggs, though, were they?

15 A. No, they were not.

16 Q. And why was that?

17 A. Kelly was doing drafting work, and Ahler was  
18 on another assignment if I remember correctly.

19 Q. Another assignment at Printing Research?

20 A. That's correct, yeah.

21 Q. And is Mr. Ahler still with Printing  
22 Research?

23 A. He is.

24 Q. Okay. What's he do now?

25 A. He is in sales.

1 Q. Okay. Can you tell us what prompted the  
2 initial work on the HRC coater?

3 A. Discussions at patent meetings.

4 Q. Discussions at patent meetings?

5 A. Yes.

6 Q. And when did those discussions begin?

7 A. I can't recall all of them by any --

8 Q. Are there any that preceded, to the best of  
9 your knowledge, the July 7, '94 meeting as best you  
10 can recall?

11 A. Not -- no, sir.

12 Q. Okay. So that was kind of a kickoff meeting  
13 in your mind?

14 MR. HARRIS: Sir, did you understand his  
15 question?

16 A. Clarify that last.

17 Q. (By Mr. Pinkerton) Was that a beginning  
18 meeting for consideration of the HRC coater with a  
19 patent attorney?

20 A. Not necessarily.

21 Q. Okay. Were there previous meetings?

22 A. I believe that -- yes, sir, I believe there  
23 was.

24 Q. Okay. When were those?

25 A. I cannot be specific. Maybe a month or two

1 before.

2 Q. Do you have any record of those in your  
3 calendar that you have?

4 A. Not that I saw. No, sir.

5 Q. Okay. So the first date that you can testify  
6 to about today where you had a meeting with a patent  
7 attorney where the HRC coater was discussed would be  
8 July 7, 1994?

9 A. Sir, I didn't admit to that.

10 MR. PINKERTON: Would you read the  
11 question back?

12 A. Yeah.

13 (Text read back)

14 A. Okay. I didn't testify to that.

15 Q. (By Mr. Pinkerton) Is -- to the best of your  
16 recollection today, what is the first meeting that you  
17 had with a patent attorney where the HRC coater would  
18 have been discussed?

19 A. I don't recall.

20 Q. And so you've testified about July 7. Okay.  
21 Do you have any basis to believe that there was a  
22 meeting prior to that time?

23 A. I have no basis.

24 Q. Okay. Was the HRC coater ever made or sold?

25 A. It was made.

1 Q. It was made. It was not sold?

2 A. Correct.

3 Q. Okay. What -- when was it made?

4 A. It was made in the first month of 1995.

5 Q. Okay. And --

6 A. I'd like to clarify. It wasn't totally  
7 made. It was begun.

8 Q. It was begun?

9 A. Begun.

10 Q. Okay. When you say it was begun --

11 A. Just started.

12 Q. -- in 1995 --

13 A. Yes, sir.

14 Q. I didn't mean to interrupt you.

15 A. Okay.

16 Q. Construction began on the HRC coater when in  
17 1995?

18 A. I would say the first week of 1995 it was  
19 started.

20 Q. Okay. Now, can you describe for us the HRC  
21 coater in terms of its components, where it's located  
22 on a press, how it operated?

23 A. Yes, sir.

24 Q. Okay.

25 A. It's the interstation coater located in our

1 instance on a two color press between towers 1 and  
2 tower 2.

3 Q. Okay. So this is a press that you're saying  
4 that you began construction of at Printing Research in  
5 early 1995, right?

6 A. We started manufacturing it. Yes, sir.

7 Q. Okay. And you have drawings of that?

8 A. I do.

9 Q. And where are those, sir?

10 A. I have submitted them.

11 Q. Okay. And do they say HRC coater on them?

12 A. Well, the ones that I just handed back to you  
13 had HRC.

14 Q. No. I'm asking the drawings of the coater  
15 that you began construction of in early 1995, did  
16 those drawings have the designation HRC coater on  
17 them?

18 A. As I recall on those that I just handed back  
19 do. Yes, sir.

20 Q. Well, these that you handed back -- the ones  
21 that you handed back we've already determined don't  
22 say HRC coater. They say PBEZ coater, correct?

23 MR. WILSON: He handed you another  
24 stack.

25 MR. SWEENEY: No. He handed you back a

TOP SECRET



1 stack that he said --

2 Q. (By Mr. Pinkerton) Oh, these.

3 A. Yeah.

4 Q. Okay. This stack, that stack.

5 A. That stack.

6 Q. Okay.

7 MR. SWEENEY: All but -- all but one  
8 sheet --

9 THE WITNESS: Yeah.

10 MR. SWEENEY: -- have HRC on it.

11 MR. PINKERTON: Okay.

12 Q. (By Mr. Pinkerton) And these have dates.  
13 ranging from 1991 up until 1995, and you can kind of  
14 check that.

15 A. That's correct.

16 Q. Okay.

17 MR. PINKERTON: Counsel, for the record  
18 there is a lot of these dates that we can't read. So  
19 I'm going to request some kind of a blowup or  
20 something where we can get a legible copy of the  
21 dates.

22 MR. HARRIS: Have you tried a magnifying  
23 glass yet?

24 MR. PINKERTON: No, sir, I haven't. But  
25 you might try to see --

1 MR. HARRIS: I'll try one. If it works,  
2 I'll --

3 MR. PINKERTON: See if you -- see if  
4 you can get a magnifying glass on that one right  
5 there.

6 MR. HARRIS: All right. I will.

7 MR. PINKERTON: It would be pretty hard  
8 to do.

9 THE WITNESS: Kevin, you want to look at  
10 that?

11 Q. (By Mr. Pinkerton) That's a big smudge,  
12 isn't it, Mr. Rendleman?

13 MR. HARRIS: That looks like a snap.

14 THE WITNESS: Yeah.

15 Q. (By Mr. Pinkerton) Can you tell us what that  
16 date is?

17 A. The date appears to be 03-06-95 on this  
18 particular one --

19 Q. Right.

20 A. -- that you handed me back.

21 Q. Okay. 03-06-95?

22 A. That's correct.

23 Q. Okay.

24 A. And I can -- it's defined on the next page, I  
25 might add, that is a blowup of that. This one does

1 appear. Would you like to examine the second one?

2 Q. Okay, good.

3 A. All right.

4 Q. Thank you.

5 A. Yeah. I think that --

6 Q. So there is a blowup of 01164 and 01165 and  
7 that does give the date. Okay?

8 A. Okay.

9 Q. And I don't want to waste time going through  
10 those.

11 A. All right.

12 Q. But we do want something that we can read the  
13 dates. If they're there, it's fine.

14 A. All right.

15 Q. What else did you give Mr. Griggs at this  
16 meeting?

17 A. I don't recall giving him anything else, sir.

18 Q. Anything other than what?

19 A. I really didn't give him anything. We  
20 reviewed things.

21 Q. Okay. What did you review with him?

22 A. We reviewed some machine prints as I  
23 remember. Details, a few of the details, just  
24 reviewed them.

25 Q. Okay. In that meeting was there a discussion



1 A. That is correct.

2 Q. Okay. Who drew that drawing?

3 A. I drew that drawing.

4 Q. Okay. On what date?

5 A. I drew that drawing on 12-27-95. I made an  
6 error when I typed that, and I will admit it.

7 Q. Okay. So what date do we need to correct  
8 then --

9 A. Okay.

10 Q. -- on that drawing?

11 A. We need to correct the year. It was on the  
12 keyboard. I typed it in.

13 Q. Right.

14 A. And I quite obviously made a mistake.

15 Q. All right. For the record, if you would take  
16 my pen and correct those --

17 A. I will.

18 Q. -- dates then. And put your initial by that,  
19 if you would, please.

20 A. All right, sir. On both of them?

21 Q. Please.

22 A. Okay. I'm going to have to draw an arrow --

23 Q. Okay.

24 A. -- from this one. Okay.

25 Q. Thank you.

1 A. I have a pen. I'll just --

2 Q. Okay. Thank you.

3 A. -- pull it out, save a --

4 Q. Thank you.

5 A. -- little time. Okay.

6 Q. So this drawing, as I understand your  
7 testimony, was actually prepared by you on December  
8 27, 1995. And that's Exhibits 11 and then the blowup  
9 is 12?

10 A. That is correct.

11 Q. Is that correct?

12 A. Yes, sir.

13 Q. And what was your reason for preparing these  
14 drawings at that time?

15 A. That was after the installation of the  
16 interstation coater on tower number 1 of the six color  
17 press. I was trying to tie all my changes together  
18 that had occurred during the installation. And I also  
19 included such things as plate loaders and other things  
20 that were in the way during the installation so I  
21 would have full knowledge of where they were in the  
22 event we built those units again. And I was trying to  
23 tie it together just for the record.

24 Q. What's a plate loader?

25 A. A plate loader is an item that helps the

1 pressman load plates.

2 Q. Like lithographic plates?

3 A. Yes, sir.

4 Q. Flexographic plates?

5 A. I assume, yes, sir.

6 Q. Okay. After that initial meeting with  
7 Mr. Griggs that we've said is July 7, 1994 --

8 A. Yes, sir.

9 Q. -- as best you can recall, when did you meet  
10 subsequently with Mr. Griggs about any type of a  
11 coating apparatus?

12 A. I would say within a three-week time frame  
13 from that date.

14 Q. Okay. And why do you say that?

15 A. Ongoing discussions in preparing our patent  
16 filings and so forth.

17 Q. Okay. You say three weeks. Now, is that  
18 keyed by a date in your --

19 A. No, sir. I had no more entries that I saw on  
20 my calendar that was listed here. That --

21 Q. Okay.

22 A. -- was the only one.

23 Q. Okay. So if I understand, you've looked  
24 through that entire calendar?

25 A. Well, not since I've been here.

1 Q. Right. Okay.

2 A. But I've --

3 Q. Go ahead and take a look at that calendar.

4 Then tell us if that has other meetings with --

5 A. All right.

6 Q. -- Mr. Griggs or other meetings concerning  
7 the subject of what we've called the EZ interstation  
8 flexoprinter coater.

9 A. (Witness complied.)

10 Q. Okay. Have you got some other dates?

11 A. I have found two that I believe were about  
12 the EZ coater.

13 Q. Okay. And can you identify those by the  
14 document number at the lower right-hand corner and the  
15 date?

16 A. Okay. It's identified by PRI 00989.

17 Q. And what date is that?

18 A. It's Tuesday, January the 10th, 1995.

19 Q. Okay.

20 A. And I have a note.

21 Q. All right. What does --

22 A. P --

23 Q. -- it say?

24 A. It says PBEZ 22.

25 Q. EZ. And is that the number 22?

100250 96237 FEB



1 A. 22 following it. Yes, sir.

2 Q. 22. Okay. Now, what did that designation  
3 mean, the 22? Do you recall?

4 A. Not positively.

5 Q. Okay. Do you have any recollection that  
6 you'd like to share with us about that?

7 A. That -- it's been a few years ago, but I'd  
8 say that refers to a print.

9 Q. A print?

10 A. Yes, sir, print.

11 Q. Okay. Can we identify that print?

12 A. Not here. I don't have that here, but it's  
13 possible I could identify it if I could find it. But  
14 just this scant thing, I can't tell much about it.

15 Q. So it's possible that you would have put the  
16 number 22 on a print?

17 A. On a print, yes.

18 Q. That you wanted to --

19 A. To save.

20 Q. That was going to be saved?

21 A. Or was important.

22 Q. Okay. And the 22, if we were to look for the  
23 drawing, where would we find that on the drawing?

24 A. It should be in the title, underneath the  
25 title at the very bottom. Where the part number would

1 ordinarily appear. How is that?

2 Q. Okay. So let's just take one of those  
3 drawings that you've got over there, Mr. Rendleman.  
4 Does that have it?

5 A. Yes, sir, it has -- yes, sir, it does.

6 Q. And you're going to have to help me.

7 A. Okay.

8 Q. Oh, sheet 2 of 2?

9 A. Well --

10 Q. Okay.

11 A. -- I was just looking at the title where it  
12 says PBEZ 1, I think, that is right there.

13 Q. I see.

14 A. Okay.

15 Q. Okay.

16 A. I would make the assumption that was a print  
17 based on that information there.

18 Q. I got you.

19 A. Okay.

20 Q. Okay. So there might be a drawing that had  
21 that designation PBEZ 22 --

22 A. Yeah.

23 Q. -- in the lower right-hand corner in the  
24 title block?

25 A. And if I could add, that print may not even

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1 have been saved. That's too --

2 Q. Okay.

3 A. -- long ago.

4 Q. Okay.

5 MR. PINKERTON: We would like to request  
6 a copy of that, however, from your counsel. Perhaps  
7 it's been produced.

8 MR. HARRIS: I'll take that under  
9 advisement.

10 MR. PINKERTON: I don't know.

11 Q. (By Mr. Pinkerton) Okay. What's your  
12 next --

13 A. Okay.

14 Q. -- item?

15 A. I have found a name that appears on Monday,  
16 June the 19th of 1995. The name on this, his name is  
17 Mike Ocker. Says to call Bob Stro -- S-t-r-o-d-e --  
18 Strodel, I believe, was the name.

19 Q. Okay. And what is the significance of that  
20 with respect to the EZ interstation flexoprinter  
21 coater?

22 A. I'm not going to speculate.

23 Q. Don't know?

24 A. Don't know.

25 Q. Did Bob Strodel do any work on --

1 A. No, sir.

2 Q. No? Did he work for Mike Ocker?

3 A. I can't answer that, sir. I don't know.

4 Q. So what leads you to believe it's in any way  
5 relevant to the EZ flexounit?

6 A. Mr. Mike Ocker did some of the electrical  
7 work that was involved on the coater, and I was in  
8 contact with him periodically.

9 Q. Okay.

10 MR. HARRIS: Let me see it just a  
11 minute. May I look at it?

12 MR. PINKERTON: Sure.

13 Q. (By Mr. Pinkerton) Any other entries in that  
14 calendar that are relevant?

15 A. I didn't find any, sir.

16 Q. Okay. Let's talk about the EZ interstation  
17 flexoprinter coater for a moment.

18 A. Okay.

19 Q. In terms of the first unit was made for  
20 Williamson, and you said it was installed on which --  
21 which unit? On the Y unit?

22 MR. HARRIS: Objected to as coupling two  
23 concepts together in one sentence, compound, and also  
24 it's not been established into evidence.

25 MR. PINKERTON: Okay. The --

1 MR. HARRIS: Reword it, please.

2 Q. (By Mr. Pinkerton) The EZ interstation  
3 flexoprinter coater, the first one of those that was  
4 made, was it installed at Williamson Printing?

5 A. No, sir.

6 Q. Where was it installed?

7 A. Printing Research.

8 Q. And when was that?

9 A. Beginning?

10 Q. I mean, when was it installed, sir?

11 A. I can't tell you the exact date, sir. I  
12 don't know the exact date it was put on.

13 Q. Well, I'm not asking for an exact date. You  
14 say --

15 A. I can --

16 Q. -- beginning.

17 A. Beginning January 1995.

18 Q. Beginning January 1995?

19 A. Yes, sir.

20 Q. And how do we -- do you have records with  
21 respect to production of that unit?

22 A. I don't recall those. It was an R&D project.

23 Q. Do they exist presently or not?

24 A. I can't answer that.

25 Q. You don't know?

1 A. I don't know.

2 Q. Who would know?

3 A. I would think Jack Chumley, who leads  
4 engineering, could help us on that.

5 Q. So you're saying that there was a unit that  
6 was actually built in January of 1995 or beginning in  
7 1995?

8 A. Beginning 1995.

9 Q. Beginning 1995?

10 A. That's correct.

11 Q. And it was installed on the two color  
12 Heidelberg press at Printing Research?

13 A. That's correct.

14 Q. And it was installed on the first printing  
15 unit?

16 A. On the first printing unit. That is correct.

17 Q. Or the second printing unit?

18 A. On the first printing unit.

19 Q. First printing unit?

20 A. First.

21 Q. And what was the configuration of that  
22 device?

23 A. It was a rotational coater that I had coined  
24 a ferris concept.

25 Q. Okay.

TOP SECRET

1       A.    And that made contact to the blanket cylinder  
2 with the anilox enclosed head.

3       Q.    So it had a head assembly for an anilox  
4 roller?

5       A.    Correct.

6       Q.    And was that the head -- same head assembly  
7 and anilox roller that was used on the EZB?

8       A.    The roller was the same.

9       Q.    And basically the same head assembly?

10      A.    Basically the same.

11      Q.    Minor changes would have been made?

12      A.    Yes, sir.

13      Q.    Okay. What kind of minor changes?

14      A.    The coater frame assembly would have been of  
15 a what I would say a thinner design due to the  
16 proximity of the second tower unit, a slimmer design  
17 of that one where --

18      Q.    Okay.

19      A.    -- I could trim it down.

20      Q.    So the size would have been a little  
21 different?

22      A.    That's correct.

23      Q.    But the basic operation function was the  
24 same?

25      A.    Of the head, yes.

1 Q. Yes.

2 A. Identical.

3 Q. And then it had a retraction mechanism?

4 A. Yes, sir.

5 Q. And the retraction mechanism had a  
6 cantilevered arm?

7 A. Correct.

8 Q. And how was it actuated?

9 A. Initially?

10 Q. Okay.

11 A. With long wrenches.

12 Q. Okay. So at that time it was mechanical as  
13 opposed to automatic?

14 A. Correct.

15 Q. Okay. And did it have -- you've heard the  
16 term in these depositions of a long arm and short  
17 arm? Have --

18 A. I have.

19 Q. -- you heard those? Was this a long arm or a  
20 short arm device?

21 A. The one at PRI?

22 Q. The one we're talking about here --

23 A. Okay. At PR --

24 Q. -- that you started on in January of 1995.

25 A. That's a long arm.

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1 Q. Long arm. And it was -- had to be a long arm  
2 because it was on the printing station; is --

3 A. Correct.

4 Q. -- that right?

5 A. That's correct.

6 Q. It had to get down and engage the blanket  
7 cylinder?

8 A. Yes, sir.

9 Q. Now, when do you think that device would have  
10 been completed?

11 A. By the last week of March '95, I feel certain  
12 it would have been completed where we could print with  
13 it.

14 Q. Do you have any records to indicate that one  
15 way or another?

16 A. No, sir.

17 Q. Any documents?

18 A. No, sir.

19 Q. No? And at that time was the unit used for  
20 printing at Printing Research?

21 A. The particular unit we're talking about?

22 Q. Yes, sir.

23 A. No, sir.

24 Q. Okay. Why not?

25 A. It wasn't quite completed.

1 Q. Okay. Was it still mechanical as opposed to  
2 automatic? Was it still manually operated?

3 A. The retraction system was manually operated.

4 Q. Right. So even in March it was still  
5 manually operated?

6 A. As I recall, yes.

7 Q. Okay. What happened next in terms of the  
8 development of that unit?

9 A. The direction was changed from PRI to  
10 Williamson Printing Company.

11 Q. And what brought that about?

12 A. I was in -- I was told to move it.

13 Q. And so did you move it?

14 A. Yes, sir.

15 Q. Where did you move it to?

16 A. Williamson Printing Company.

17 Q. And was it then installed on one of the  
18 Heidelberg presses, one of the new Heidelberg presses  
19 at Williamson?

20 A. Be specific, sir. Which?

21 Q. Any of them.

22 A. On any of them, yes, sir.

23 Q. Okay. Which one do you recall it being  
24 installed on?

25 A. I remember it being installed on the new

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1 seven color on the L coater tower.

2 Q. Seven color press on the coater tower at the  
3 end of press?

4 A. On the end of press, yes, sir.

5 Q. Okay. And were you actually -- did you  
6 actually supervise taking that unit from PRI over to  
7 Williamson Printing?

8 A. Yes, sir.

9 Q. Okay. And did you do that at someone's  
10 instruction?

11 A. Yes, sir.

12 Q. At whose instruction?

13 A. Initially that instruction was John Bird.

14 Q. Okay. What did Mr. Bird tell you?

15 A. He said, I have gained permission from the  
16 powers to be in the organization to move the unit.

17 Q. Powers to be in which organization?

18 A. Okay. At Printing Research. I'm sorry.

19 Q. Printing --

20 A. Printing --

21 Q. -- Research?

22 A. -- Research. Yes, uh-huh.

23 Q. Okay. So you had a conversation with  
24 Mr. Bird where that was said?

25 A. I had a very brief conversation with John

1 Bird at that point.

2 Q. Okay. About what time was that,  
3 Mr. Rendleman? Time period? End of March what you're  
4 saying?

5 A. No, no. It was --

6 Q. Okay.

7 A. -- I would say on or about the 15th of March.

8 Q. Of March?

9 A. Yes, sir.

10 Q. Okay. So he had received authorization to  
11 move the unit. And then what did you do?

12 A. I proceeded to find other people that I felt  
13 I should contact before I took on something of that  
14 magnitude.

15 Q. Okay. And did you talk to people about  
16 moving it?

17 A. I certainly did.

18 Q. And who did you talk to?

19 A. It's been a long time, Mr. Pinkerton. I  
20 talked to Dave Douglas. I talked to Terry Britain. I  
21 don't recall talking to Howard DeMoore, but I tried to  
22 find him. And there may have been others, but I don't  
23 recall specifically.

24 Q. And what was your discussions with them? Can  
25 you tell us about those?

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1 A. Yes.

2 Q. Okay.

3 A. I said the unit as it is configured is not  
4 prepared to be mounted on that press at Williamson  
5 Printing Company.

6 Q. And why was that, sir?

7 A. The arms were of such length that if I tried  
8 to put it on, they would come crashing down into the  
9 catwalk of the press.

10 Q. The catwalk at the delivery --

11 A. At the --

12 Q. -- end of the press?

13 A. At the beginning of the delivery, at the  
14 lowest point of the L, which would be in close  
15 proximity to the blanket cylinder where I would have  
16 to make this thing make contact.

17 Q. Now, why did you think there was a problem  
18 that they might come crashing down?

19 A. I had knowledge by picture form that I had a  
20 brochure that -- of a Heidelberg press that I referred  
21 to quite frequently on things anyway, trying to keep  
22 up with changes. And I noticed there was disparity in  
23 the size of the frame structures. I couldn't tell you  
24 how much at that point, but there was disparity.

25 Q. Okay. What did you do then? Well, you

1 talked to -- you say --

2 A. Yeah.

3 Q. -- you talked Mr. Douglas about this?

4 A. Yes.

5 Q. And so what was his response to you?

6 A. I don't recall the exact terminology, but he  
7 said it's been approved.

8 Q. So then what did you do about moving that  
9 unit?

10 A. I think I went back to CAD, computer-aided  
11 design, to see for myself so I could accurately  
12 describe.

13 MR. HARRIS: Would you read back the  
14 question on that? I think the witness is answering  
15 something else, or I didn't hear it right, one of the  
16 two

17 (Text read back)

18 A. Okay.

19 Q. (By Mr. Pinkerton) Okay. You went back to  
20 the CAD for some reason?

21 A. Yes.

22 MR. HARRIS: Now, wait a minute. Did  
23 you hear the question?

24 THE WITNESS: Yeah.

25 MR. HARRIS: Okay.

1 THE WITNESS: What did I do. Yes.

2 Q. (By Mr. Pinkerton) Go ahead.

3 A. Okay. I wanted to be absolutely, you know,  
4 exact that the changes -- that I would have to make  
5 changes, and I didn't want to say I may have to. But  
6 I wanted to be specific about what I would have to do  
7 to alter the unit to fit on the press at Williamson.

8 Q. Okay. Did you have to make some changes?

9 A. Yes, sir.

10 Q. What did you -- what did you change?

11 A. Changed practically the entire top of the --  
12 of the lift mechanism where -- the attachment plate to  
13 the top of the press, because there was hole  
14 differentials on the top of the press, something  
15 around 20 millimeter which is a big bolt. They were  
16 in different locations on that L tower. And they  
17 wouldn't match the plate that I had already designed  
18 that was on our two color press.

19 Q. Okay. This was the plate that you used to  
20 anchor the unit on top of the coating tower?

21 A. That's correct.

22 Q. Okay. So the holes didn't match up, and you  
23 were going to have to move the holes to make -- so you  
24 could bolt it on; is that right?

25 A. That's part of the changes, yes.

1 Q. Okay. And what else?

2 A. The pivot point of the rotational aspect of  
3 the rotating the unit up and down was way out of  
4 match. It was impossible to reach an agreeable length  
5 that would work. Thus, I had to raise the unit at the  
6 center point of the axle, if that's all right, or the  
7 center point of rotation, I mean, to equate to that  
8 that we had produced already in our plant on our press  
9 or on our printing tower. And as I remember, it was  
10 approximately, oh, between five and six inches  
11 difference total.

12 Q. How did you raise it?

13 A. I built a perch or a pedestal that -- well,  
14 plates. I used plates and another plate to be able to  
15 gain a point in midair to attain that.

16 Q. Okay. So you wanted to be able to when  
17 the -- when the arm would come down and you wanted to  
18 engage the blanket cylinder, you wanted, of course,  
19 the anilox roller to match up with the blanket  
20 cylinder --

21 A. With the --

22 Q. -- right?

23 A. Yes, sir.

24 Q. And the way you did that was you put a  
25 platform up on top --



1 A. That's --

2 Q. -- and raised your unit up a little bit?

3 A. That's correct.

4 Q. Okay.

5 A. Yes, I did.

6 Q. Any other changes?

7 A. I had to provide for a small guard  
8 interference on the new press that we didn't have on  
9 ours. I had to clear a small guard. And I had to  
10 design a method of clamping it to the tower that was  
11 different from our particular unit. There was enough  
12 difference in the configuration on the side of the  
13 side frame per se where I had to come up with a  
14 different clamping mechanism for it to match.

15 Q. In your conversations with Mr. Bird or  
16 Mr. Douglas --

17 A. I feel -- yes, sir.

18 Q. No.

19 A. Okay.

20 Q. Let me -- I'm starting --

21 A. All right.

22 Q. -- a new question.

23 A. Oh, okay.

24 Q. In your conversations with Mr. Bird,  
25 Mr. Douglas, whoever else you talked to before that

1 device was moved over to printing -- before it was  
2 moved to Williamson, did you have any understanding  
3 about whether or not Williamson had requested the  
4 installation of that unit or not?

5 A. I had no knowledge, sir.

6 Q. You didn't have any reason why it was being  
7 moved, or you didn't know why --

8 A. I had no --

9 Q. -- it was being moved?

10 A. -- earthly idea at that point.

11 Q. Okay.

12 MR. PINKERTON: Mr. Harris, what would  
13 you like to say, sir?

14 MR. HARRIS: Number 1.

15 MR. PINKERTON: Okay.

16 MR. HARRIS: Can we --

17 MR. PINKERTON: Break?

18 MR. HARRIS: -- break?

19 MR. PINKERTON: Yeah.

20 THE VIDEOGRAPHER: We're off the video  
21 record, 2:38, tape two.

22 (Recess was taken)

23 THE VIDEOGRAPHER: We're on the video  
24 record, 3:06, tape two.

25 Q. (By Mr. Pinkerton) Once the unit was placed

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1 on the press at Williamson, the unit that we've been  
2 talking about --

3 A. Yes, sir.

4 Q. -- again it was still manually operated at  
5 that time?

6 A. That is correct.

7 Q. Okay. Did you go to Williamson and test the  
8 unit at that time or after that?

9 A. You're going to have to be a little more  
10 specific on testing. That covers a lot of things --

11 Q. Okay.

12 A. -- if you will, please.

13 Q. Well, did you -- did you have occasion to go  
14 to Williamson and make adjustments, modifications to  
15 that device for any reason?

16 A. Yes, sir.

17 Q. Okay. Can you tell us what those were and  
18 what you did?

19 A. I can remember I had to improve on my  
20 clamping device. It was one area that didn't seem to  
21 work just like I had anticipated it would work where  
22 it clamped to the side frame of the press. The  
23 pumping unit needed some changes. We were out of  
24 time, so to speak, to meet a deadline. And we pulled  
25 up a pump that we had. And then later we improved

1 upon it. It was -- needed little repairs on that.

2 Q. When did the improvements take place?

3 A. Well, they were ongoing.

4 Q. From end of March '95 up until when?

5 A. Yes, sir. I can recall one instance in June  
6 that we made a significant change.

7 Q. On the pump?

8 A. No, sir. This -- on this time it was a  
9 gearing problem, not -- I'm sorry. Let me rephrase.  
10 Not a gearing problem. The result of coating getting  
11 in the gears deteriorated one of my seals, and I had  
12 to change gears out.

13 Q. Excuse me. How long did that -- that unit --  
14 is it appropriate to call it a prototype unit?

15 A. I don't have any objection to that.

16 Q. Okay.

17 A. That's fine.

18 Q. How long was that prototype unit actually on  
19 the seven color press at Williamson as best you can  
20 recall?

21 A. You want when it was removed? Is that --

22 Q. Yes.

23 A. Okay. When it was removed. Had to have been  
24 in -- boy, this is a guess. I'm going to say either  
25 late '95 or early '96 we moved it.

1 Q. You moved it. Now, so you're saying that the  
2 prototype unit, which was manually operated, stayed  
3 there at the end of that press until the end of '95?

4 A. As I recall, yes.

5 Q. Were modifications made to it so that it  
6 became automatic?

7 A. That is correct. They were, yeah.

8 Q. And when approximately did that take place?

9 A. That major modification took place possibly  
10 in July of '95.

11 Q. And what keys you to July '95?

12 A. I would have some purchase orders that I  
13 would have to refer to for some components that I  
14 think were made then, and that's just a guess.

15 Q. And who made those components?

16 A. One of them was a chain company. One of them  
17 was a company that manufactures gear boxes. Those  
18 could be easily found because they were purchased on  
19 the economy, and we ordinarily didn't order things  
20 like that.

21 Q. And what were those companies?

22 A. Rex Roth manufactured the hydraulic motor.  
23 Diamond was the manufacturer, as I recall, for the  
24 chain. Martin Sprocket provided the chain sprockets.  
25 Others -- there was others, but those would be the

1 most significant.

2 Q. Previously you had testified about an EZ  
3 interstation flexoprinter coater being installed, I  
4 believe, in mid May of 1995 on the L tower of the  
5 seven color Heidelberg press at Williamson.

6 A. Yes, sir.

7 Q. Do you recall that testimony?

8 A. Yes, sir.

9 Q. Okay. Now, is that the prototype that we're  
10 talking about now, or is that another device?

11 A. No, sir. That's the same device.

12 Q. Same device?

13 A. Yes, sir. Same.

14 Q. Okay. So previously you had said mid May,  
15 and then I think your most recent testimony was that  
16 you talked to Dave Douglas and other people after  
17 talking to Mr. Bird, and you thought you moved it over  
18 there at the end of March?

19 A. (No response.)

20 Q. Do I have that correct?

21 A. That's correct.

22 Q. Okay. So you would say it was mid or --

23 A. Just physically moved, yes.

24 Q. Moved over there?

25 A. Moved over.

1 Q. March --

2 A. Yes.

3 Q. -- of '95?

4 A. Yes.

5 Q. Okay. What about the first production model  
6 EZ interstation flexoprinter coater that was installed  
7 on a press at Williamson? Okay? When was the first  
8 production model installed at Williamson?

9 A. Beginning point of assembly was approximately  
10 the first week of November.

11 Q. November '95?

12 A. Of '95. Yes, sir.

13 Q. First week of assembly?

14 A. Of -- yes. Let's call it installation,  
15 please.

16 Q. Okay. And on what press do you recall that  
17 was installed on?

18 A. That was installed on their six color CD  
19 press that had a LYL configuration at the end of the  
20 press.

21 Q. What unit was it actually placed on?

22 A. It was installed on the first printing unit.

23 Q. The first printing unit?

24 A. Yes, sir.

25 Q. All right. I understand that there was at

1 least a second production model EZ interstation coater  
2 that was installed at Williamson?

3 A. That's correct.

4 Q. And when was it installed and on what press  
5 was it installed, if you know?

6 A. That unit was installed on the second-to-last  
7 printing tower, I believe, of the eight color press as  
8 my memory remembers that one.

9 Q. And approximately when was that?

10 A. Approximately midyear of '96.

11 Q. All right. Was a third what I'll call  
12 production model installed at Williamson?

13 A. Third production?

14 Q. Yes.

15 A. Okay. We're not --

16 Q. The third --

17 A. Okay. We're not including the experimental?

18 Q. Yeah. I'm not counting the experimental  
19 right now.

20 A. No, sir, there was not.

21 Q. Okay.

22 A. Just the two, the two and the experimental.

23 Q. Okay. So the experimental then, as I  
24 understand your testimony, went in March 1995 --

25 A. Correct.

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1 Q. -- right?

2 A. Right.

3 Q. And then subsequently changes were made to  
4 that unit to make it where it was no longer a manually  
5 operated, but it became automatically operated as far  
6 as being able to retract and lower the coating head?

7 A. That is --

8 Q. Is that right?

9 A. That is correct. Yes, sir.

10 Q. And you think that that -- those  
11 modifications would have been completed approximately  
12 when?

13 A. I would estimate May, mid May of '95.

14 Q. May of '95?

15 A. Yes, sir.

16 Q. Now, again talking about short arm and long  
17 arm devices. Okay? That first one you've said was a  
18 long arm device. Okay? The prototype was a long arm  
19 device. Then the one that you installed on the  
20 second-to-last printing tower of the eight color, was  
21 it a long arm or a short arm?

22 A. That was a long arm.

23 Q. And were there any other -- what was the  
24 other one I missed? I'm sorry. You had one on the  
25 tower coater of the six color LYL?

1 A. Right.

2 Q. That was a short arm?

3 A. That's where -- yes, sir.

4 Q. In terms of long arm and short arm, are we  
5 talking about modifying the length of the retraction  
6 mechanism, one of the arms in the retraction  
7 mechanism?

8 A. Two of the arms.

9 Q. Two of the arms?

10 A. Yes, sir.

11 Q. Okay. Take a look at Exhibit 3 of the  
12 patent, or excuse me, figure 2 of the patent,  
13 Exhibit 3. Does that show two arms or show one arm?

14 A. The picture shows one arm.

15 Q. One arm. Okay. And were there two arms in  
16 the production model?

17 A. There was two arms in the production model.

18 Q. Okay. And so both of those would have been  
19 shortened for the short arm device?

20 A. Oh, yes, sir.

21 Q. Okay. Thank you.

22 A. Okay.

23 Q. With respect to the -- the EZ interstation  
24 printer coaters that were supplied to Williamson that  
25 you've talked about -- okay? -- is it correct that

1 some of the parts that were used for those devices  
2 were the same as parts that had been used on previous  
3 products of Printing Research?

4 A. That is correct.

5 Q. Okay. And for example, those would include,  
6 what, the coating head assembly that we've talked  
7 about, the anilox roller?

8 A. The anilox roller.

9 Q. The anilox roller?

10 A. Yes, sir.

11 Q. Okay. And how about the coating head  
12 assembly itself? Those same side plates were used,  
13 were they not?

14 A. No, sir.

15 Q. Were modifications of them made -- used?

16 A. Yes, sir. Modifications.

17 Q. Okay. Again, sizing and plate thickness,  
18 those kind of modifications?

19 A. Yes, sir.

20 Q. Any others?

21 A. I don't recall any right now.

22 Q. Okay. So you had some existing parts that  
23 were used. You had some modified parts that were  
24 used. Correct?

25 A. That's correct. Yeah.

1 Q. Okay. Then I take it you had to fabricate  
2 some parts yourself?

3 A. This is correct.

4 Q. And the parts that you fabricated, what are  
5 those parts?

6 A. I can't really say by your description, sir.

7 Q. Let's say the major components. For example,  
8 the arms of the retraction mechanism, did you  
9 fabricate those?

10 A. Yes, we did.

11 Q. Did you do those there at your shop?

12 A. Yes, sir, we did.

13 Q. And how did you go about doing that?

14 A. On the CAD system we would make a layout of  
15 that particular part, identifying centers and the  
16 configuration around centers. We would make what we  
17 call a DXF, which is a term that associates to the  
18 machine that the part is made on to supply the data to  
19 the CNC mill to make the part. Dots and O's and so  
20 forth to tell the machine a path, which would be a  
21 duplicate path on the CAD -- that you had generated on  
22 the CAD system.

23 Q. Now, were these parts keyed to a -- were  
24 these part drawings that were done on the CAD system,  
25 were they keyed to a given project like, for example,

1 Williamson since they were being made for Williamson?

2 A. No, sir.

3 Q. Were they keyed to any project number or any  
4 code at all?

5 A. They had a part number. They just had a part  
6 number.

7 Q. Would start with a part number.

8 A. Yes, sir.

9 Q. Okay. And we have previously discussed this  
10 off the record. There are part numbers for all of  
11 these parts that are used in the EZ interstation  
12 flexoprinter coater, right?

13 A. That is correct.

14 Q. And there's a CAD drawing for every part?

15 A. A better would be 95 percent.

16 Q. Okay. 95 percent?

17 A. Yes, sir.

18 Q. Okay. Were there CAD drawings for the parts  
19 on the prototype as well?

20 A. Yes, there was.

21 Q. Okay. Can we -- can you prepare for us at  
22 the request of your counsel, if they approve, an  
23 entire listing of those part numbers for the prototype  
24 and the production model EZ interstation flexoprinter  
25 coaters that were supplied to Williamson?

1 A. I could.

2 Q. Okay. And we would ask that that be done.

3 And that's what I understand is at least  
4 part of a bill of materials; is that correct?

5 A. Yes, sir.

6 Q. And the bill of materials would also include  
7 a description of those parts?

8 A. It would.

9 Q. Okay. Also include what other information?

10 A. On the list of material it would have a what  
11 we call a bubble, which is a number in a circle. And  
12 it goes to an assembly so that you can identify or an  
13 assembly-type person can find the piece.

14 Q. Okay.

15 A. It would have a date that the print was drawn  
16 on CAD. And if there was a revision letter, there  
17 would be a revision letter to reflect the most current  
18 REV on that part. That's about it.

19 Q. Okay. What was it that caused you to --  
20 excuse me. What was it that caused you to begin work  
21 on that initial device that you were talking about  
22 working on at Printing Research? You know what I'm  
23 talking about?

24 MR. HARRIS: Objected to as vague,  
25 indefinite --

1 MR. PINKERTON: I'm sorry.

2 MR. HARRIS: -- incomprehensible.

3 Q. (By Mr. Pinkerton) The prototype unit you  
4 said started out at Printing Research and then went to  
5 Williamson?

6 A. Eventually it did, yes.

7 Q. And then it became a modified version that  
8 was used at Williamson according to what you  
9 testified --

10 A. Yes, sir.

11 Q. -- right?

12 A. That's correct.

13 Q. When you initially started on the unit over  
14 at Printing Research, tell me how that came about.  
15 Why did you do that? Was that at somebody's request?

16 A. It was at someone's request.

17 Q. And can you tell me about that? Whose  
18 request was it?

19 A. Howard DeMoore.

20 Q. And when was this request made of you?

21 A. Approximately during the month of July of  
22 1994.

23 Q. And were there others -- well, was this in a  
24 meeting between you and Mr. DeMoore?

25 A. That is correct.

1 Q. Were there others in the meeting?

2 A. Yes, there was.

3 Q. And who was that?

4 A. I recall there was Dennis Griggs. I recall  
5 that there was Howard Secor. There was -- in addition  
6 to that and -- who am I leaving out? Oh, John Bird.

7 Q. And Mr. Bird was there?

8 A. Yes, sir. John Bird was there.

9 Q. And so tell me what you were instructed or  
10 asked to do by Mr. DeMoore.

11 A. He asked me to -- if I could duplicate,  
12 remanufacture a coater head such as we had on our  
13 second color unit, and reinstall it between towers  
14 number 1 and towers number 2 in an interstate  
15 configuration. And he asked me to think about how I  
16 could retract that unit so that the printing press  
17 would be made available to run in its conventional  
18 manner.

19 Q. Did he say anything else to you at that time?

20 A. I don't recall.

21 Q. And you've previously given us the other  
22 people that were in that meeting? That's the July 7  
23 meeting.

24 A. Yes, sir.

25 Q. Is that right?

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1 A. That's correct.

2 Q. Okay. Okay. After that period of time did  
3 you give some thought as to how you could do that?

4 A. I did.

5 Q. Okay. The unit that was at the end at that  
6 time as I understand it on your press, was the EZB  
7 unit; is that correct?

8 A. No, that's not correct.

9 Q. That's not correct?

10 A. That's not correct.

11 Q. Why is that -- why is that not correct?

12 A. The letters that you described don't fit it.

13 Q. I'm sorry. I thought it was the EZB which  
14 was the retractable end of press unit with an anilox  
15 roller.

16 A. It was that but --

17 Q. Uh-huh. And that's what I understand is  
18 the -- we've already talked about that?

19 A. Yes, we have. I thought I called it HRC,  
20 Heidelberg Rendleman coater.

21 Q. Well, I think previously we had testimony, we  
22 looked at the brochures and that brochure was called  
23 the -- the EZB. Do you recall that, sir, on  
24 Exhibit 7?

25 A. Wait a minute. Wrong page.

1 MR. HARRIS: It's like a newspaper.

2 A. Are you referencing to the second page, 582?

3 Q. (By Mr. Pinkerton) Let me take a look.

4 583.

5 A. 583. No, sir, that is not the unit.

6 Q. So at that time -- well, when was the -- you  
7 said you worked on that EZB. You made that  
8 changeover.

9 A. That is correct.

10 Q. Okay. And that would be -- what we see there  
11 is the EZB coater, right?

12 A. EZB.

13 Q. Are you saying was another change made after  
14 this?

15 A. This is correct.

16 Q. Okay. So you -- did you at one time have an  
17 EZB coater installed in a press at Printing Research?

18 A. Yes, we did. Yes, sir.

19 Q. Okay. When did it get changed to something  
20 else?

21 A. I made modifications on that unit  
22 following -- let's see. About 11-92, 12-92 I began  
23 making modifications.

24 Q. What kind of modifications?

25 A. We removed the existing lift or retraction

TOP SECRET

1 mechanism that was on the PB coater and supplied a new  
2 one, designed a new one.

3 Q. And is that when you decided to change over  
4 from Efferetz, start making your own unit?

5 A. That is correct.

6 Q. And for the record how do we spell Efferetz?

7 A. E-f-f-e-r-e-t-z. I think so, sir.

8 Q. That's a hundred percent correct according --

9 A. Oh, great. Okay.

10 Q. -- to this document.

11 A. How about that? Spelling was not my best  
12 subject.

13 MR. HARRIS: Spelling bee.

14 Q. (By Mr. Pinkerton) The retraction unit that  
15 was used on the PBZ, how do you described it? I mean  
16 the EZB. I'm sorry.

17 A. Okay. It had two round rails. One was on  
18 the gear side. One was on the operator side. It had  
19 linear bearings that moved up and down on those rods  
20 or those shafts. In turn those bearings were mounted  
21 to the head of the -- the coater head.

22 Q. And it was a linear retraction?

23 A. Yes, sir.

24 Q. Okay. Now, when you modified it and put in  
25 the new one, describe it for us.

1       A.    Okay.  We totally removed the Efferetz  
2 coater, the mounting paraphernalia and anything that  
3 may have been used to hold it on, everything.  We went  
4 and designed a replacement that was cleaner and  
5 simpler to do the same job in a more efficient way.

6       Q.    In terms of the retraction mechanism, was it  
7 still that same linear retraction mechanism, or was it  
8 different?

9       A.    It was the one I just described as being  
10 round rods with bearings.

11       Q.    Okay.  But still --

12               MR. HARRIS:  I'd like -- I'd like to  
13 suggest there's confusion on the record obviously.  
14 The witness has answered the wrong question.  I think  
15 you asked the right one.

16       A.    Ask me again.

17       Q.    (By Mr. Pinkerton)  I'm just talking about  
18 was it still a linear retraction --

19       A.    Yes, sir.

20       Q.    -- mechanism?

21       A.    Yes, sir.

22       Q.    Okay.  But you had modified it in the way you  
23 had described?

24       A.    Correct.

25       Q.    Okay.  Did you make any other -- what other

EXHIBIT 342-60

1 changes did you make? How about the coating head  
2 assembly?

3 A. I did make some outline changes to that, to  
4 the configuration of the coater head itself.

5 Q. The coater head, as I understand it at that  
6 time, is what we have seen the side plates for; is  
7 that correct?

8 A. Yeah.

9 Q. Exhibits what?

10 A. Let's see. That was Exhibit 9.

11 Q. And the other one?

12 A. 9. And the other one is Exhibit 10.

13 Q. Okay. 9 and 10. So was that still the same  
14 coating head that you used?

15 A. No, sir. That -- no, sir, not at all.

16 Q. You modified it?

17 A. I did.

18 Q. And what did you go to?

19 A. Very briefly, I went to one that would go to  
20 the plate and the blanket cylinder.

21 Q. Okay. Approximately when did you design  
22 that?

23 A. I would estimate the first part of '93.  
24 That's a rough estimate.

25 Q. So at that time you went to -- well, strike

1 that. The coating head assembly that we see the side  
2 plates for in those exhibits --

3 A. Yes, sir.

4 Q. -- would hold one applicator roller?

5 A. Correct.

6 Q. Is that right?

7 A. That's right.

8 Q. So what, did you call that a -- is that a  
9 single -- single roller head?

10 A. Single roller head is -- yes, sir, that would  
11 describe it.

12 Q. Okay. Then you went to a dual roller head?

13 A. I did.

14 Q. Okay. And it was one that would engage both  
15 the plate cylinder and the blanket cylinder; is that  
16 right?

17 A. That is correct, yes, sir.

18 Q. Engage them simultaneously?

19 A. It could.

20 Q. At the time you initially designed it, did it  
21 engage both?

22 A. No, sir.

23 Q. It didn't? At the time you originally  
24 designed it, which one was it -- which one would it  
25 engage?

TOP SECRET

1 A. Blanket cylinder.

2 Q. With either the top or bottom roller?

3 A. You asked me if it would -- I could move it?

4 Yes, I could.

5 Q. Yes. Okay.

6 A. Yes, sir. I could move it from one socket to  
7 another.

8 Q. But it was initially designed -- excuse me --

9 A. That's all right.

10 Q. -- to engage the blanket cylinder?

11 A. Yes, sir.

12 Q. Subsequently did you change it where you  
13 could engage both the plate cylinder and the blanket  
14 cylinder?

15 A. Yes, sir.

16 Q. And when was that, approximately?

17 A. I can't recall that date. It had to be  
18 following the date that we made that frame, but I  
19 don't have a clue --

20 Q. Okay.

21 A. -- on that.

22 Q. Can you tell me, Mr. Rendleman, just in terms  
23 of the file structure of your CAD drawings -- okay?  
24 When you go in there to look for parts for the  
25 prototype unit and the production models of the EZ

1 interstation -- okay? -- what do you go in and look  
2 for?

3 A. Once a print is completed on your individual  
4 hard drive, we give it a definitive number and put it  
5 on network so that any number of people who are  
6 qualified can call that print up at their own PC. And  
7 we list that particular number into a manual book just  
8 for a reference.

9 Q. That was done starting in -- was that done in  
10 1994?

11 A. No, sir.

12 Q. It's done now?

13 A. It's done now.

14 Q. When did you start doing that?

15 A. I would say completely in sometime in '96.

16 Q. Okay. Let's go back and talk about what's  
17 done in '94 and '95.

18 A. Okay.

19 Q. Okay? With respect to drawings that were  
20 made in 1994 and 1995 of various parts for the EZ  
21 interstation coater, how do you know to go in and what  
22 to look for in the CAD system files with respect to  
23 those parts?

24 A. That I'm doing now or in '94?

25 Q. Well, you've got to go --

FOOTNOTES



1 A. Okay.

2 Q. -- back now and look --

3 A. Look for.

4 Q. -- what you did in '94 and '95, how you do  
5 that.

6 A. Okay. I started with this PB that we have  
7 seen numerous prints that were preceded with that. It  
8 was on --

9 Q. Plate blanket coater?

10 A. Plate blanket, yes. And I would add one  
11 digit because it was a limited number of prints  
12 initially. And if I came up with a print today, I  
13 might call it 23 and in subsequent form. And at that  
14 time I just had them listed manually on a sheet so I  
15 could refer to them, because they were on my hard  
16 drive.

17 Q. Okay. Do you still have that sheet?

18 A. I don't think so. No, sir. I threw it away  
19 when we converted them to the final system.

20 Q. Okay. But it all keys to part -- part  
21 numbers?

22 A. Yes.

23 Q. That's what you're saying, right?

24 A. That's correct.

25 Q. And when you -- when you have the drawing --

1 let's say you have a drawing, and then you have a  
2 modification. Okay?

3 A. Uh-huh.

4 Q. Is both the original drawing and the modified  
5 drawing saved?

6 A. Yes.

7 Q. They're both on the system?

8 A. They're, yes, one and the same.

9 Q. Okay. So those are still available and we  
10 could get those?

11 A. Yes, sir.

12 Q. Okay. To the best of your recollection,  
13 drawings that would relate to the PBC, the plate  
14 blanket coater that we've seen here -- which exhibit  
15 is it? Shown for --

16 MR. SWEENEY: 5.

17 Q. (By Mr. Pinkerton) Shown, for example, in  
18 5. Okay? Drawings that relate to the plate blanket  
19 coater as shown here on Page 125. Okay?

20 A. (Witness nods head.)

21 Q. Would those drawings refer to PBC?

22 A. They would refer to PBC.

23 Q. Okay. Drawings that -- drawings that relate  
24 to the modified PBC, which was -- which went to the  
25 anilox roller, you changed --

1 A. Right.

2 Q. -- the coating head assembly?

3 A. Right.

4 Q. What would they refer to?

5 A. At that time I referred to them initially as

6 PB.

7 Q. PB?

8 A. Just PB.

9 Q. And then did that change?

10 A. It changed to HRC.

11 Q. Okay. Was it also referred to as EZB?

12 A. I have -- yes, it was in some instances. Not

13 totally all the way through it was not.

14 Q. So we could use or we could find any of those

15 different initials on these drawings --

16 A. Yes, you could.

17 Q. -- that related to the --

18 A. Right.

19 Q. -- EZB as shown in Exhibit 7, correct?

20 A. You could, yes, sir.

21 Q. Okay. And then drawings for what we see here

22 in Exhibit 7 and Page 582, that's a description and a

23 bad copy of the EZ interstation flexoprinter coater,

24 right?

25 A. That is correct.

1 Q. And drawings for that device would have what  
2 kind of --

3 A. They'd have --

4 Q. -- nomenclature on them?

5 A. -- a 10-digit number that we have in our  
6 system that we use.

7 Q. And what's the 10-digit number? Is it --  
8 does it have any particular code or meaning?

9 A. Yes, it does.

10 Q. Can you explain that to us, please?

11 A. I can. A 6 defines coater.

12 Q. And is that the first number or what?

13 A. That is -- the 6 is, and we use other numbers  
14 to identify other product.

15 Q. Okay.

16 A. Followed by a dash, just dash. Then we would  
17 have, if it's a side frame, since we've talked about  
18 that before, would be 001.

19 Q. So you've got numbers for the different  
20 components of the device?

21 A. That's right.

22 Q. Okay.

23 A. Followed by a dash. And if it's the 14th, it  
24 was a 14th side frame. As an example only, it would  
25 be 0014. Then to further identify it, the last two

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1 numbers would be a dash 01. And if it's a dash 02,  
2 it's the mirror image of that part.

3 Q. So the 01 and 02 is if you have -- well, if I  
4 understand it, if you just had one part it's 01?

5 A. That is correct.

6 Q. If you've got a mirror image, it's 02?

7 A. Yes, sir.

8 Q. And the mirror image is just left side/right  
9 side?

10 A. Exactly.

11 Q. Operator side and gear side?

12 A. That's correct.

13 Q. Okay. Now, that nomenclature, when did you  
14 start using that nomenclature?

15 A. We started that in -- I'm not going to  
16 guess. I would -- I'm going to say first part of '95.

17 Q. Okay. The -- the table where you -- where  
18 you have what numbers refer to which product or which  
19 component, do you have a chart that shows --

20 A. Yes --

21 Q. -- that?

22 A. -- we do.

23 Q. Okay. What do you call that?

24 A. I don't think it has a name per se. It's  
25 preceded by a letter of the alphabet like A, so

1 forth. And we drop a few letters, and it works its  
2 way on up like to N. And N, by the way, identifies  
3 coaters. That's the first initial thing that you  
4 would look to --

5 Q. On the numbers?

6 A. -- on the computer. Yes.

7 Q. Okay.

8 A. I was going to tell you that a minute ago. I  
9 meant to.

10 Q. Now, you said the letter or the number 6  
11 stood for coater?

12 A. It does, yes.

13 Q. So use both of them?

14 A. The N won't appear. It doesn't print the N  
15 out. We only have to key that so that the computer  
16 knows where to start search.

17 Q. Okay.

18 A. So you would see something preceded with a 6.

19 Q. Okay.

20 A. Okay.

21 Q. But this document that has the cross-  
22 references between numbers and initials and parts --  
23 okay -- what I call a cross-reference number, you've  
24 got that in the form of a document?

25 A. No, sir. If one exists, I have no formal

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1 copy of that. I've just memorized that.

2 Q. You think your CAD operator has got one?

3 A. Yes, sir.

4 Q. Okay. And who is in charge of the CAD  
5 operation now?

6 A. Don Manning heads that department who is the  
7 accounting man. He has other individuals that work  
8 under him that would be savvy to that.

9 Q. Who is the one who actually supervises the  
10 CAD drawing work that's done directly?

11 A. Shane is his name. His last name escapes me.

12 Q. Okay. We kind of got sidetracked while ago,  
13 Mr. Rendleman, at my fault. We talked about the  
14 various components of the EZ interstation flexoprinter  
15 coater.

16 A. Okay.

17 Q. Some of the parts were existing parts at PRI?

18 A. That is correct.

19 Q. Some were modifications of existing parts?

20 A. Yes, sir.

21 Q. Some were fabricated parts?

22 A. Yes, sir.

23 Q. Were some parts fab -- or excuse me. Were  
24 some parts subcontracted --

25 A. Yes, sir.

1 Q. -- to others?

2 A. Yes, they were.

3 Q. Okay. Can you tell me what parts were  
4 subcontracted out and who were they subcontracted to?

5 A. The vast majority of parts that was vended  
6 out was sheet metal. We don't have a sheet metal  
7 facility. A.C. Horn is a local vendor in the  
8 Brookhollow area, made all of the sheet metal guarding  
9 for the unit.

10 Q. Okay.

11 A. One part is a long linked item that requires  
12 a long lathe to make that we don't have, and I sub it  
13 out. The company that makes that is J.B. Machine.

14 Q. Okay. Now, would you have provided J.B.  
15 Machine a drawing?

16 A. Yes, sir, we would.

17 Q. Okay. What about the electrical system and  
18 the -- excuse me. This is a pneumatic, pneumatic  
19 operation? Is that what you said?

20 A. I did. Yes, sir.

21 Q. What about the electronics and the  
22 pneumatics?

23 A. They're of an in-house design.

24 Q. And who did that design?

25 A. Which, the initial one?



1 Q. The electrical.

2 A. The electrical?

3 Q. Right.

4 A. A gentleman named Mike Ocker.

5 Q. Now, does he -- you say in-house. Was he an  
6 employee of Printing Research?

7 A. Yes, sir.

8 Q. At that time he was?

9 A. I can't positively say. He contracted in and  
10 out, so I don't know the exact date. But he  
11 contracted some, and then he was on our payroll for a  
12 lengthy period of time.

13 Q. Okay. We've been produced a lot of documents  
14 here from Mike Ocker --

15 A. Okay.

16 Q. -- and I'm going to show you these.

17 A. Okay.

18 Q. They're invoices and payments to him, which I  
19 have understood to mean that he was a subcontractor  
20 and that he did this work on a subcontract basis for  
21 Printing Research.

22 A. He did.

23 MR. HARRIS: I'd like to interpose an  
24 objection as seeking for a legal conclusion or  
25 analysis of the difference between a subcontractor and

1 an employee from a layman. That's just no good.  
2 Object.

3 Q. (By Mr. Pinkerton) What do you understand  
4 the basis on which he did it?

5 A. Initially he subcontracted.

6 Q. And initially being when, what time period?

7 A. Early '95. Retract that. He worked earlier  
8 than that on other projects that I don't have any  
9 wherewithal to talk about. He worked even before I  
10 came to the company.

11 Q. Okay. I'm not concerned about that.

12 A. Okay.

13 Q. I'm just concerned about any work that  
14 Mr. Ocker or any other subcontractor or any other  
15 outside supplier did with respect to the EZ  
16 interstation --

17 MR. HARRIS: Mr. Pinkerton, to have a  
18 subcontractor you have to have a contractor.

19 MR. PINKERTON: I think if the question  
20 isn't understood, he'll let us know.

21 Q. (By Mr. Pinkerton) I'm talking about outside  
22 suppliers, outside vendors. Okay?

23 A. Okay.

24 Q. So with respect to that, again people who  
25 were just suppliers or outside vendors for the EZ

1 interstation printer coater. Okay? That's what I'm  
2 asking about.

3 A. Okay. And -- okay.

4 Q. You're saying Mr. Ocker did that?

5 A. Yes, he provided that service.

6 Q. Okay. And again, was it in 1995 that he did  
7 that with respect to the EZ interstation?

8 A. 1994 he worked on that project.

9 Q. What did you have him do in 1994?

10 A. Lay out the electrical requirements for the  
11 unit.

12 Q. And when do you understand that he had  
13 accomplished that?

14 A. I can't be specific on that because it was  
15 ongoing.

16 Q. Okay. In terms of the documents, if we  
17 looked for that how would we see that in terms of the  
18 documents? Do you know?

19 A. To my best recollection, it would be in  
20 invoicing --

21 Q. And what would be --

22 A. -- to the company.

23 Q. Would the invoicing say electronics, or what  
24 would they say?

25 A. It would have a statement of what he worked

1 on; a coater, a dryer, or whatever he worked on. And  
2 if there was a -- parts that he had to buy on his own  
3 to fulfill something, we would have a list of that.

4 Q. Okay. What else did Mr. Ocker do, if  
5 anything, besides the electrical work?

6 A. The man is gifted. He did -- I can't be  
7 specific. It was mostly electrical work.

8 Q. Okay. How about the actual operation of the  
9 retraction mechanism? It operated you say  
10 pneumatically?

11 A. Yes.

12 Q. And who designed that?

13 A. We -- I was a part of that.

14 Q. Okay. Who else?

15 A. Howard Secor was a part of that.

16 Q. Okay.

17 A. I don't remember others at the time.

18 Q. Were there any other outside vendors,  
19 suppliers, subcontractors that you used other than  
20 these people that you've just given me?

21 A. There were. People that furnished  
22 cylinders. There's one in the Dallas area. I can't  
23 think of the name of it right now, but there is a  
24 company that produces air cylinders and hydraulic  
25 components. They're local. We've used them. It's

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1 been a long time.

2 (Discussion off the record)

3 Q. (By Mr. Pinkerton) Mr. Rendleman, your  
4 counsel have produced to us a group of documents  
5 which, I believe, are checks and invoices relating to  
6 Mike Ocker. And there is a couple of notes in here  
7 about the appropriateness of some of his charges.  
8 These are PRI 01213 through 01291.

9 A. Okay.

10 Q. I want you to look at those, please, sir, and  
11 tell me if these represent invoices and payments for  
12 work done by Mr. Ocker on the EZ interstation  
13 flexoprinter coater.

14 A. Okay. First can I ask, are they in the order  
15 by date? Do you know that much?

16 Q. Say I don't know. Just say --

17 A. Okay. Just so I don't have to go through all  
18 of them.

19 Q. I think they're in the same order where they  
20 were produced --

21 A. I see.

22 Q. -- to us.

23 A. Okay.

24 Q. You might confirm that.

25 A. They appear to be. Okay.

1 Q. And as a matter of fact, these are in -- they  
2 appear to be in chronological order?

3 A. Okay.

4 Q. Right?

5 A. Seem to be. Yes, sir.

6 MR. HARRIS: You haven't been through  
7 all of them.

8 THE WITNESS: No, I haven't been through  
9 all, but it's --

10 Q. (By Mr. Pinkerton) And they --

11 MR. HARRIS: Then why would you say  
12 that?

13 Q. (By Mr. Pinkerton) They start here --

14 THE WITNESS: They're the ones I went  
15 through but --

16 Q. (By Mr. Pinkerton) They start here in  
17 January '95. I see go through November and December.

18 MR. HARRIS: Sir, save your time if he  
19 will so represent.

20 MR. PINKERTON: And I don't know, Bill.  
21 I don't remember if I put these in chronological order  
22 or if --

23 MR. WILSON: I don't think they were  
24 produced in chronological order.

25 Q. (By Mr. Pinkerton) You're right. I did -- I

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1 did put them -- I attempted to put them in  
2 chronological order.

3 A. Okay.

4 Q. So those number -- that number range that I  
5 gave is incorrect.

6 A. Okay.

7 Q. So we're going to have to mark this as a  
8 group exhibit.

9 A. Okay.

10 Q. But that's okay.

11 A. All right.

12 Q. All of these, as I understand it, are in 1995  
13 from Mr. Ocker.

14 A. Okay.

15 Q. I've understood from discussions with your  
16 counsel that a lot of documents from Mr. Ocker have  
17 been produced. And we know -- I think this is  
18 correct -- that they are being produced not  
19 necessarily to indicate that, in fact, everything he  
20 did here related to the EZ interstation printer  
21 coater. And I'd like to know if there is anything in  
22 here that is work that he did that didn't relate to  
23 that device.

24 MR. HARRIS: Counsel, let's take 15  
25 minutes to let him go through those very carefully.

1 MR. PINKERTON: Okay. Let's give --

2 MR. HARRIS: I'm tired of seeing him  
3 have to work so damn hard on the record.

4 MR. PINKERTON: Let's give him all the  
5 documents then. There's another stack that we --

6 MR. HARRIS: Okay, that's fine.

7 MR. PINKERTON: -- another stack we got  
8 yesterday.

9 MR. HARRIS: That's fine.

10 MR. PINKERTON: Where is it?

11 MR. HARRIS: Tell him what you want to  
12 do with him, and we'll --

13 MR. PINKERTON: You bet.

14 MR. HARRIS: -- give him an appropriate  
15 period of time.

16 MR. PINKERTON: Where is that stack,  
17 Bobby? Do you have it, or do I have it?

18 MR. FALK: It's not in this stack.

19 MR. PINKERTON: Okay.

20 MR. FALK: This looks like a contiguous  
21 stack of documents.

22 MR. PINKERTON: Let me see that.

23 MR. FALK: This is the same thing as  
24 what you had.

25 MR. PINKERTON: Okay.



1 MR. FALK: The Bates numbers is -- shows  
2 that this is --

3 MR. PINKERTON: Yeah.

4 MR. FALK: -- their production last  
5 week.

6 MR. PINKERTON: That's yours, Marty.

7 MR. FALK: There's a smaller set that  
8 they just produced.

9 MR. PINKERTON: Yeah, we'll find that.

10 MR. FALK: Much smaller.

11 Q. (By Mr. Pinkerton) Okay. So for the record,  
12 I want to give you, Mr. Rendleman, another set of  
13 documents. I believe these are consecutively numbered  
14 PRI 01514 through 01640, and unfortunately, ask you to  
15 make the same determination with respect to those.

16 A. All right, sir.

17 Q. All right? Tell us which of these documents  
18 do not relate to work on the EZ interstation printer  
19 coater.

20 A. Okay. Do it right here. All right.

21 THE VIDEOGRAPHER: We're off the video  
22 record, 3:53, tape two.

23 (Recess was taken)

24 THE VIDEOGRAPHER: We're on the video  
25 record, 4:21, tape three.

1 MR. HARRIS: Yes. On the record we seem  
2 to be trying to figure out something about documents.  
3 What is it?

4 MR. PINKERTON: Well, we had -- we had  
5 asked --

6 MR. HARRIS: I'm lost.

7 MR. PINKERTON: Okay.

8 MR. HARRIS: What is it that was passed  
9 over to Mr. Falk?

10 MR. PINKERTON: I guess we are going to  
11 need that other stack because Mr. Rendleman was going  
12 to put in one stack the documents relating to Mr. Mike  
13 Ocker that pertained to the EZ interstation  
14 flexocoater, and he's going to cull out the ones that  
15 do not.

16 A. I did.

17 Q. (By Mr. Pinkerton) Okay.

18 A. There is some overlap where in one billing he  
19 may have worked in some aspects and others, and when  
20 there was any of the coater I kept it in. So some of  
21 it will not be relative.

22 Q. Okay. The ones that you now have in front of  
23 you are ones where he did work on the EZ interstation?

24 MR. HARRIS: What have we given  
25 Mr. Falk? I don't know.

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1 MR. PINKERTON: Mr. Falk, he got --

2 MR. HARRIS: I guess I ought to ask my  
3 co-counsel over here.

4 MR. PINKERTON: He got the culls.

5 MR. WILSON: The rejects.

6 MR. PINKERTON: He got the culls, the  
7 ones that do not apply.

8 MR. HARRIS: Well, why does he want  
9 them?

10 MR. WILSON: I don't know.

11 MR. PINKERTON: Only because your  
12 co-counsel --

13 MR. HARRIS: I demand --

14 MR. PINKERTON: -- gave them to him.

15 MR. HARRIS: -- return of them right  
16 now. Those are irrelevant documents.

17 MR. FALK: Well, these are our copies  
18 made at our copy machine. Maybe we'll also mark these  
19 as the culls.

20 MR. PINKERTON: That's fine.

21 MR. FALK: See that? It's marked as  
22 culls.

23 MR. HARRIS: I'm puzzled of the --

24 Q. (By Mr. Pinkerton) Mr. Rendleman --

25 MR. HARRIS: -- whole affair.

1 Q. (By Mr. Pinkerton) Let me have those if you  
2 would, please.

3 A. I will. All right.

4 Q. Are they now in any kind of order?

5 A. They're still by date. As I indicated to you  
6 a moment ago, some of them have multiple projects  
7 involved. But if it had anything to do with coater,  
8 PB or the likes, I retained it. I didn't cull out any  
9 that had anything to do with reference the coater.

10 Q. All right. Take a look at 01588 through  
11 01597.

12 A. Okay.

13 Q. Now, what -- what work does that indicate  
14 that Mr. Ocker did?

15 A. Reference the coater?

16 Q. Yes.

17 A. And avoid the ones that do not, is that --

18 Q. Yes.

19 A. -- fair enough?

20 Q. Yes.

21 A. Okay.

22 Q. Identify something that relates to a coater.

23 A. Okay. On 4-24 of '94, he provided labor to  
24 design controls for the PBEZ coater.

25 Q. Okay. Once again, that's the plate blanket

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1 modified to include the anilox roller?

2 A. That is correct, sir.

3 Q. Okay. Anything else in that?

4 A. No, sir. The next has something else on the  
5 back of it.

6 Q. All right. Keep these together.

7 A. Yeah. Okay.

8 Q. 01577 through 01583. What does that indicate  
9 Mr. Ocker did on a coater?

10 A. Says on 6-1 of '94 it was the labor to wire  
11 and check out the PBEZ controls. The rest is  
12 irrelevant.

13 Q. Okay. Now, would that once again have been  
14 the EZB?

15 A. EZB. Yes, sir.

16 Q. EZB?

17 A. Yeah.

18 Q. Okay. Document 01213 through 01218. Once  
19 again, what's that reflect Mr. Ocker did?

20 A. Okay. 12-8 of '94, I'm going to read this.  
21 And I really, by what it says it's hard to strike this  
22 one here. I mean, it's what it is. I'm sorry.

23 The labor to check out hydraulic pump  
24 and add wash-up controls to hydraulic speed control  
25 unit. That's taking me in two directions. I really

1 have a hard time with that one.

2 Q. And the two directions are what?

3 A. The two directions are a hydraulic pump and a  
4 speed control.

5 Q. Okay. That -- to the best of your knowledge,  
6 did that relate to something with respect to the EZ  
7 interstation device?

8 A. It could have.

9 Q. Could have, but you're not sure?

10 A. I'm not 100 percent sure. No, sir.

11 Q. Okay.

12 MR. HARRIS: What's the date on it?

13 THE WITNESS: 12-8 of '94.

14 Q. (By Mr. Pinkerton) Okay.

15 A. On 12-11, labor and material to connect wire,  
16 the HV controls on seven color Heidelberg. That has  
17 no relevance.

18 Q. Okay. Document 01308 through 01317.

19 A. 3-20 of '95. Labor and material to connect  
20 HV dryer. That has no relevance. 3-20 of '95, labor  
21 to connect EZ coater controls with three phase AC  
22 drive for electric-driven EZ coater per Howard Secor.  
23 Also check out AB2 controls.

24 To my best knowledge, this will have no  
25 relevance. Sounds like it does, but I'm almost sure

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1 it does not because we were a hydraulic-driven unit.

2 Q. Okay.

3 A. On 3-20 of '95. Labor to connect UV system.  
4 Labor to check out AC drive, EZ coater, and connect EZ  
5 coater test setup for Williamson. And he's got 3-20.  
6 This should have had some relevance to the case.

7 Q. Okay. That would have been March 20 of '95?

8 A. That is correct.

9 Q. And could that have been at the time that  
10 that prototype was installed at Williamson?

11 A. It could have been.

12 Q. Okay. The next one is 01318 through 01321.

13 A. Okay. 3-24 of 1995. This is the labor to  
14 prepare LM's and schematics for AC drive, EZ coater  
15 per Howard Secor. That has no relevance.

16 Q. Okay. So should we totally take this  
17 document out of our stack of relevant items? I mean,  
18 that was --

19 A. We might have mistaken that one. When I got  
20 Howard Secor's name, that was a separate project.

21 Q. Okay. So we can discard this one?

22 A. Yes, sir. Give that --

23 Q. Okay. That goes in the culls. That goes to  
24 Mr. Falk.

25 A. Okay. What a title.

1 Q. Okay. We've got here now document 01300  
2 through 01307.

3 A. On 4-13 of '95. Labor to connect Ventahood,  
4 remote control and remote speed control in AB2. That  
5 has no relevance.

6 Okay. 4-16 of '95. Labor to connect  
7 and install controls for interstation anilox coater on  
8 press in R&D.

9 Q. Okay. Now, whose facility was that?

10 A. That was our facility per this description.

11 Q. Okay. That was at Printing Research?

12 A. That is correct.

13 Q. Where that work was done?

14 A. That's what he's indicated.

15 Q. Okay. Thank you. The next document is 01203  
16 through 01209.

17 A. Date 5-3-95. Labor and material to wire  
18 coater on seven color Heidelberg at Williamson  
19 Printing, Dallas, Texas. That is relevant. And the  
20 following page is material that he used to accomplish  
21 that mission based on what I see here.

22 Q. All right. May I see that, sir?

23 A. Yes, sir, you may.

24 Q. Do you know what work he would have been  
25 talking about where he writes here, labor and material

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1 to wire coater --

2 A. Yes.

3 Q. -- on the seven color Heidelberg?

4 A. I think I do.

5 Q. Okay. Can you explain that, please?

6 A. Let me get to that page, please.

7 Q. Go ahead.

8 A. Okay. Since the unit was moved in somewhat  
9 haste to set a deadline, we were unable to get  
10 everything finalized at Printing Research prior to its  
11 delivery. So this indicates to me that on this  
12 particular date -- I would say it was a weekend -- he  
13 had to on his own make some evaluations, purchase some  
14 material to get the unit wired up on a weekend, and we  
15 didn't have time to keep running back and forth to our  
16 facility to find those items.

17 Q. Okay.

18 A. That was my best summary.

19 Q. The next document is 01179 through 01194.

20 A. This one is dated 7-19 of '95. Labor to work  
21 on design of hydraulic coater for HRC coater, position  
22 control for Williamson Printing.

23 With just that description I can't make  
24 a positive identification of what he was doing.  
25 That's identified by PRI 01182.

1 Q. Okay.

2 A. On 7-19 of '95, labor to design, assemble and  
3 wire new AC verbal speed anilox roll coater control.  
4 Once again, by that description, since we were  
5 hydraulic I don't think that's relevant on that  
6 particular billing.

7 Q. Okay.

8 A. 7-19 of '95, labor to wire controls for HV  
9 unit at Williamson Printing on new eight color press.  
10 Also add timing relays to stagger start HV. That  
11 portion is not relevant.

12 On 7-19, again listed is labor to check  
13 out control problem on AB2 at -- on eight color,  
14 control pot and max power set incorrectly during  
15 test. That has no relevance.

16 7-19, again continue assembly and wiring  
17 for new design HRC coater. That would have relevance  
18 there.

19 Q. And why would it have relevance to you?

20 A. Why would it have?

21 Q. Yes.

22 A. To the interstation coater.

23 Q. All right. And what was the work that was  
24 done there?

25 A. Continue assembly and wiring for new design

1 HRC coater.

2 Q. Okay. And the date on that is what?

3 A. That is 7-19 of '95.

4 Q. Okay. Okay. The next one is 01240 through  
5 01246.

6 A. 8-7 of '95, labor to design hydraulic speed  
7 control for the HRC coater lift mechanism. That  
8 should be the interstation coater, I would be -- so  
9 that is relevance.

10 Q. You're saying it should be interstation  
11 because it refers to HRC?

12 A. Yes, sir.

13 Q. Is that what you're saying?

14 A. That's what I'm saying.

15 Q. Okay.

16 A. On 8-13 of '95, labor for engineering and  
17 design on HRC lift position control. That would  
18 indicate the interstation coater on tower number 1.

19 Q. What lift position control is that referring  
20 to?

21 A. We had a control with a push button station  
22 on it that initially gave us some problem, and we had  
23 to redo it. It was a safety violation, as I recall.  
24 Without -- very briefly we went to a horn mechanism  
25 rather than a manual to give an indication when this

1 thing was moving.

2 Q. Okay.

3 A. Right here?

4 Q. Yeah.

5 A. All right.

6 Q. The next one, 01247 through 01250.

7 A. 8-17-95, labor to design HRC lift control. I  
8 would think that that was an ongoing of what we just  
9 covered --

10 Q. Okay.

11 A. -- would be my opinion.

12 Q. All right. 01251 through 01255. Excuse me.  
13 Got 01253.

14 MR. HARRIS: Go ahead.

15 A. Oh, dated 8-24 of '95, we have a listing of  
16 labor to build controls for HRC lift controls. Rather  
17 vague description. I would think it would be the same  
18 that we just talked about.

19 8-28-95, labor and material to install  
20 and check out HRC lift controls on seven color  
21 Heidelberg CD press at Williamson Printing. I  
22 would -- do you want a description --

23 Q. (By Mr. Pinkerton) Yes.

24 A. -- what I think of that?

25 Q. Yes.

1       A.    I would think we were finalizing the lift  
2 control on the short arm coater and possibly bringing  
3 it up to date with that work that he did then.

4       Q.    Okay. The next one is 01254 through 55.

5       A.    This is dated 9-6 of '95, labor to wire  
6 control panel, test and check out for final shipment.  
7 Six unit control for bac-vac for Sedco Company.

8               Apparently this one slipped through a  
9 crack. This might belong to Mr. Falk.

10      Q.    Okay. We'll give that to the cull stack.  
11 01258 through 01263.

12      A.    Okay. Dated 9-25-95. Labor and material to  
13 add extractor fan control and wiring AB II dryer at  
14 Williamson Printing. Also labor to work on HRC II  
15 controls. This would indicate to me the interstation  
16 coater that we were preparing to install.

17      Q.    Okay.

18      A.    9-25 again, labor to build hydraulics for  
19 that HRC II. That would be the same indication for  
20 the interstation coater. 10-2 of '95, labor and  
21 material to install dryer on six color Speedmaster CD  
22 press at Haywood Printing. That part has no  
23 relevance.

24               10-6-95, labor to build HRC lift control  
25 and make LM's for same. That would indicate the

1 interstation unit at -- to go in to Williamson.

2 10-6 again, labor to test two HV  
3 controls and work on HRC II. Part of that makes  
4 indication to the coater. The other does not.

5 Q. Okay.

6 A. Okay.

7 Q. 01264 through 66.

8 A. Dated 10-16-95, labor to modify controls for  
9 PBC coater for Eurotech. That's irrelevant.

10 10-21-95, labor to modify controls for  
11 PBC coater and test, Eurotech. Another one for  
12 Mr. Falk.

13 Q. Okay. That's a cull. The last one, 01286  
14 through 88.

15 A. Dated 11-13 of '95 is labor to wire and  
16 assemble speed control panel for HRC coater at  
17 Williamson press. That would be the interstation unit  
18 on number 1.

19 11-17 of '95, labor to finish control  
20 wiring on HRC system for Williamson Printing. That's  
21 definitely for the interstation coater, tower  
22 number 1, six color.

23 11-12-95, labor to check out controls  
24 and replace flow switches on D.I. water and change  
25 water system at La Quinto. No relevance.

FOOTNOTES

1 MR. PINKERTON: Okay. All right. Let's  
2 mark the group of documents reflecting work done by  
3 Mr. Ocker as a group exhibit which will be number,  
4 what?

5 THE REPORTER: 13.

6 MR. PINKERTON: Number 13.

7 (Exhibit 13 marked)

8 MR. PINKERTON: Okay. Let's mark as  
9 Exhibit 14 the stack of documents that were identified  
10 by Mr. Rendleman as work that was done by Mr. Ocker  
11 that didn't relate to the coater.

12 (Exhibit 14 marked)

13 Q. (By Mr. Pinkerton) Mr. Rendleman, is the  
14 usual procedure before you start manufacturing a  
15 device that is being provided to a customer, to have a  
16 purchase order?

17 A. In most cases, yes.

18 Q. With respect to the EZ interstation  
19 flexoprinter coaters that were supplied to Williamson,  
20 was there -- was there a purchase order?

21 A. I really not -- really don't know that.

22 Q. Okay. You don't --

23 A. No.

24 Q. -- have any information one way or another?

25 A. No, sir. I wasn't in that, no.

1 Q. So if you did have a purchase order -- well,  
2 strike that. In a situation where you're making a  
3 piece of equipment for a customer and you do have a  
4 purchase order, is the purchase order referenced in  
5 your CAD drawings or drawings that are made for that  
6 particular piece of equipment?

7 A. Yes, many times.

8 Q. And how is it referenced?

9 A. By particular name of a company, an  
10 organization oftentimes.

11 Q. So you said the company name would be  
12 referenced as opposed to a purchase order number?

13 A. Sometimes, yes.

14 Q. Or sometimes you -- sometimes you do and  
15 sometimes you don't?

16 A. That is correct.

17 Q. Okay. So there's no set way that it's always  
18 done at Printing Research?

19 MR. HARRIS: Do you know?

20 A. I don't positively know.

21 Q. (By Mr. Pinkerton) You don't know if there's  
22 a set way of doing it or not?

23 A. No, sir.

24 Q. Okay. The devices that we talked about being  
25 supplied to Williamson, I think you've testified all



1 were supplied in 19 -- or by 1995; is that right?

2 A. That is correct.

3 Q. Okay.

4 A. Rephrase that.

5 Q. I'm sorry.

6 A. All of the equipment?

7 Q. Well, I'm sorry. Mid '96 --

8 A. Mid '96.

9 Q. -- was one?

10 A. Mid '96.

11 Q. Mid '96?

12 A. Yes, sir.

13 Q. Okay. After that time was the EZ  
14 flexoprinter coater modified?

15 A. Rephrase that again for me.

16 Q. Has the EZ device that we've been talking  
17 about been modified after mid 1996?

18 A. Not to my knowledge.

19 Q. It hasn't been modified? None of the parts  
20 have been changed?

21 A. I don't know that because haven't been there.

22 Q. Excuse me?

23 A. I haven't been at Williamson at that time.

24 Q. Okay. Maybe we're misunderstanding each  
25 other.

1 A. . Oh, okay.

2 Q. I'm not talking about the devices that were  
3 actually supplied to Williamson.

4 A. You're not?

5 Q. No. I'm talking about -- let's just -- let  
6 me rephrase --

7 A. Okay.

8 Q. -- the whole question.

9 A. Sounds good.

10 Q. After mid 1996, has the EZ interstation  
11 flexoprinter coater as shown and described, for  
12 example, in Exhibit 7 been modified or changed by  
13 Printing Research?

14 A. Not to my knowledge.

15 Q. Has anyone else done any engineering on that  
16 device to your knowledge?

17 A. I have no knowledge of that.

18 Q. If changes would have been made, would you  
19 know about it?

20 A. Sometimes.

21 Q. Well, if changes had been made to this EZ  
22 interstation flexocoater -- okay? -- would you know  
23 about those changes or not after mid 1996?

24 A. After mid 1996, no.

25 Q. You would not?

1 A. No, sir.

2 Q. Why is that?

3 A. I can't be both places both times. You know,  
4 I can't be down there. If somebody's changing I may  
5 not have knowledge of that, sir.

6 Q. Well, what else would you have been doing?

7 A. In my work capacity what would I be doing?

8 Q. Yes.

9 A. I've been in production control capacity for  
10 quite some period of time. I would be in that.  
11 Sometimes I indirectly hear of things but not on any  
12 regular basis.

13 MR. SWEENEY: I think he's talking about  
14 the Williamson devices again.

15 MR. HARRIS: I don't think so.

16 MR. PINKERTON: I don't -- I think  
17 it's -- I think I understand what he's saying.

18 THE WITNESS: Okay.

19 MR. DEMOORE: No.

20 MR. HARRIS: You're not talking about  
21 Williamson, are you?

22 THE WITNESS: No, sir.

23 MR. HARRIS: Okay.

24 Q. (By Mr. Pinkerton) Does Printing Research  
25 have any of the EZ interstation devices on hand in

1 inventory?

2 A. Are you referring to a complete unit?

3 Q. Yes.

4 A. No, sir.

5 Q. Are they custom-made for customers?

6 A. This is correct.

7 Q. And it depends on the press as to what it's  
8 going to go on? That's some information you have to  
9 have to actually make it fit that press?

10 A. That is correct.

11 Q. And I guess these different presses are --  
12 the printing units aren't the same on all the printing  
13 presses?

14 A. That's right.

15 Q. So Komori is different from Heidelberg?

16 A. Yes, sir.

17 Q. And Mann Roland is different from them?

18 A. That is correct.

19 Q. And you have to make adjustments depending on  
20 which press you're putting it on?

21 A. Yes, sir.

22 Q. Do you have knowledge of the EZ interstation  
23 flexoprinter coater being sold --

24 MR. HARRIS: Objected --

25 A. No, sir.

1 MR. HARRIS: -- to.

2 MR. PINKERTON: I didn't finish the  
3 question.

4 MR. HARRIS: Finish it.

5 Q. (By Mr. Pinkerton) Do you have knowledge of  
6 the EZ --

7 MR. HARRIS: Just don't answer real  
8 quick. Let me hear it.

9 Q. (By Mr. Pinkerton) -- EZ interstation  
10 flexoprinter coater being sold to any companies after  
11 mid 1996?

12 MR. HARRIS: You can answer that.

13 A. Yes, I do.

14 Q. (By Mr. Pinkerton) Okay. To whom?

15 MR. HARRIS: Objected to. You're  
16 instructed not to answer.

17 And while we have a protective order, I  
18 do want to confer with the client before giving  
19 permission to go forward.

20 MR. PINKERTON: Okay.

21 THE VIDEOGRAPHER: We're off the video  
22 record, 4:48, tape three.

23 (Recess was taken)

24 THE VIDEOGRAPHER: We're on the video  
25 record, 4:51, tape three.

(Beginning Page 199, Line 4 through  
Page 204, Line 17, contains confidential  
testimony and is contained in a sealed  
excerpt not bound in this transcript.)

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17 (End of confidential testimony.)

18 MR. PINKERTON: Okay. Let's mark  
19 another group of documents here. And before we mark  
20 them, let me let the witness take a look at them.

21 We pulled these in?

22 MR. FALK: Yeah.

23 MR. PINKERTON: These are documents  
24 00696 through 698 -- and strike that. Actually they  
25 go from 00696 through 691.

1 A. (Witness reviewed)

2 Q. (By Mr. Pinkerton) Mr. Rendleman, have you  
3 seen any of these documents prior to today?

4 A. No, sir.

5 Q. Were you involved in -- take those from you.  
6 Were you involved in any testing at Printing Research  
7 in December of 1994 that involved Williamson?

8 A. Personally, no, sir.

9 Q. Do you have any knowledge about those tests?

10 A. I heard about them, yes.

11 Q. And who did you hear about them from?

12 A. Terry Britain name -- is the printer, our  
13 printer, per him.

14 Q. He's a press operator?

15 A. This is correct.

16 Q. Did you make any modifications or changes to  
17 any printing equipment or printing presses at Printing  
18 Research for those tests?

19 A. No, sir.

20 Q. Let me call your attention to document  
21 00699.

22 A. Okay.

23 Q. And you notice up in the upper right-hand  
24 corner it says Equipment to be Demonstrated. You see  
25 that? Upper right-hand.

1 A. Upper right-hand.

2 Q. Yeah.

3 A. Equipment to be demonstrated. It indicates  
4 an EZB.

5 Q. EZB. The EZB is the coater that we've talked  
6 about that was retractable end of press with an anilox  
7 roller?

8 A. Correct.

9 Q. Okay. Do you have any reason to doubt that  
10 the equipment to be demonstrated and that was

11 demonstrated at this test in December was the EZB?

12 MR. HARRIS: Objected to as calling for  
13 pure speculation.

14 MR. PINKERTON: I said does he have any  
15 reason to doubt it.

16 A. I have no reason to doubt it.

17 Q. (By Mr. Pinkerton) Okay. Those -- I'm  
18 sorry. I'll take that from you.

19 A. Okay.

20 Q. Those four units that you said that you had  
21 knowledge of that were built and I think you said  
22 sold, but you didn't know the customers --

23 A. That's right.

24 Q. -- after mid 1996 --

25 A. Okay.

1 Q. -- were those installed on presses here in  
2 the United States?

3 A. As far as I know, yes.

4 MR. PINKERTON: I need to take about  
5 five minutes.

6 MR. HARRIS: Sure.

7 THE VIDEOGRAPHER: We're off the video  
8 record, 5:05, tape three.

9 (Recess was taken)

10 (Exhibit 15 marked)

11 THE VIDEOGRAPHER: We're on the video  
12 record, 5:16, tape three.

13 Q. (By Mr. Pinkerton) Mr. Rendleman, I might  
14 have asked you this. I don't know. The four units  
15 that you talked about being sold after mid 1996, were  
16 those made for mounting on a printing unit or the  
17 tower --

18 MR. HARRIS: You did.

19 Q. -- or a tower coater?

20 A. Yeah.

21 Q. And what --

22 MR. HARRIS: Asked and answered, but  
23 answer it again.

24 Q. (By Mr. Pinkerton) What did you say, if you  
25 would, please?

1 A. A printing unit.

2 Q. Printing unit?

3 A. Yes, sir.

4 Q. Okay. All four of them?

5 A. Yes, sir.

6 Q. Okay. We've marked as Exhibit 15 the first  
7 amended original complaint in this case.

8 MR. PINKERTON: Bobby, you got a copy of  
9 that?

10 MR. FALK: Uh-huh.

11 Q. (By Mr. Pinkerton) This is a -- let me ask  
12 you, have you seen Exhibit 15 before?

13 A. No, sir.

14 Q. Do you understand that there is a motion  
15 that's been filed to add you as a party in this  
16 lawsuit?

17 A. Yes, sir.

18 Q. And the first amended complaint is what you  
19 have, and the motion is to grant leave so that this  
20 can be filed. Okay? That's what the motion is, I'll  
21 represent to you.

22 A. Okay.

23 Q. If you turn to Page 10, Paragraph 42 --

24 A. 10, Paragraph 42?

25 Q. Right.

1 A. Okay. I've turned to it.

2 Q. And this says, Plaintiff specifically  
3 requests that the Court remove Davis and Williamson as  
4 named inventors for the 363 patent and add DeMoore and  
5 Rendleman as the actual joint inventors for the 363  
6 patent. In the alternative, if the Court determines  
7 that DeMoore and/or Rendleman were co-inventors with  
8 Davis and Williamson of the subject matter claimed in  
9 the 363 patent, then Plaintiffs specifically request  
10 that the Court add DeMoore and/or Rendleman as joint  
11 inventors for the 363 patent according to its  
12 determination.

13 Do you see those allegations -- or  
14 excuse me -- that language in the complaint?

15 A. Do I see it as you read it?

16 Q. Yes.

17 A. I do.

18 Q. Okay. Would you please tell the jury in this  
19 case the basis for your claim that you believe you  
20 should be added as a joint inventor on the patent.

21 MR. HARRIS: You are, sir, admonished to  
22 recall that there is an attorney/client privilege.  
23 And to the extent that there are legal considerations  
24 that you learned from the lawyers in this case as you  
25 discussed it, you're not required to answer that and



1 you're instructed not to answer that part.

2 THE WITNESS: Okay.

3 Q. (By Mr. Pinkerton) I'm not asking for  
4 anything counsel might have told you. I'm asking --  
5 you've asked the court, there is a motion pending for  
6 you to be added as a party in this case, and one of  
7 the allegations is that you should be designated as a  
8 joint inventor. What do you believe is the basis why  
9 you should be added as a joint inventor of the 363  
10 patent?

11 A. I'm not sure.

12 Q. Okay. Let me show you the original complaint  
13 in this case.

14 MR. PINKERTON: And if we can get that.  
15 Mark this as 16.

16 (Exhibit 16 marked)

17 Q. (By Mr. Pinkerton) Have you seen the  
18 original complaint before?

19 A. No, sir, I have not seen this.

20 Q. Okay. This is the complaint that was filed  
21 when this case was originally began back in May of  
22 1992 -- 1999. Take a look at Paragraph 35 on Page 8,  
23 please.

24 A. (Witness complied.)

25 Q. Okay?

1 A. I see it.

2 Q. And starting with the last word on the page  
3 there where it says Plaintiffs, then let's go on to  
4 Page 9.

5 A. Okay.

6 Q. It says, Plaintiffs specifically request that  
7 the Court remove Davis and Williamson as named  
8 inventors for the 363 patent and add DeMoore as the  
9 sole actual inventor for the 363 patent.

10 You see that?

11 A. Yes, sir, I do.

12 Q. Okay. Are you aware of any facts or  
13 documents that you believe would support a claim that  
14 Mr. DeMoore is the sole actual inventor of the method  
15 covered by the 363 patent?

16 A. No, sir, I'm not.

17 (Exhibits 17-20 marked)

18 MR. PINKERTON: Let's go ahead and mark  
19 these.

20 MR. HARRIS: If you mark them, you're  
21 wasting your time.

22 MR. PINKERTON: Oh, I just want to ask  
23 him --

24 MR. HARRIS: You're the one that told me  
25 5:30.

1 MR. PINKERTON: I know. And I've got  
2 to -- we've got to run but --

3 MR. HARRIS: Well, if you've got to run,  
4 run. If you don't, don't.

5 MR. PINKERTON: I've got to ask him  
6 these, about these four documents. 17, 18 --

7 MR. HARRIS: Well, that will take a  
8 while, Mr. Pinkerton. You either mean 5:30 or you  
9 don't mean it.

10 MR. PINKERTON: I do need to leave to go  
11 pick up my kids, but this is important and we've still  
12 got five minutes.

13 MR. HARRIS: That's fine if you've got  
14 five minutes and you're going to go for five minutes.  
15 There's no problem.

16 MR. PINKERTON: I'm going to ask him  
17 about these documents. If we go over for five  
18 minutes, we'll do that.

19 MR. HARRIS: Okay. Five minutes is all  
20 right.

21 Q. (By Mr. Pinkerton) Those are marked with  
22 Exhibit Number 17, 18, 19, and 20, Mr. Rendleman.

23 A. That is correct.

24 Q. You see those?

25 A. I do see that, yes.

1 Q. Okay. Can you tell us what those drawings  
2 are, please, sir.

3 A. Yes, I can. They're drawings of -- of  
4 different coater arrangements on a lithograph press.

5 Q. Okay. Exhibit Number 17, what document  
6 number is that?

7 A. Document number is a PRI 01138.

8 Q. There's some writing up in the upper  
9 left-hand corner of that document.

10 A. Yes, there is.

11 Q. Is that your handwriting?

12 A. That is my handwriting.

13 Q. And when did you put that handwriting on that  
14 document?

15 A. Approximately July of ninety -- of 2000.

16 Q. July of this year?

17 A. That's correct.

18 Q. And what was the occasion?

19 A. I was preparing this to give to our -- to our  
20 lawyers.

21 Q. And so you wrote that and then provided it to  
22 your attorneys?

23 A. Yes, I did.

24 Q. Okay. The other writing that appears on the  
25 other exhibits, is that all your writing?

1 A. Yes, that's my writing.

2 Q. Okay. And was that writing placed on there  
3 at about the same time --

4 A. Yes, it was.

5 Q. Okay. Back to the first document there,  
6 Exhibit what, 17?

7 A. Correct, 17 I've got in my hand.

8 Q. There is a drawing in the left-hand corner,  
9 and there's a circle. Then inside the circle it says  
10 HRC coater. Do you see that?

11 A. I do.

12 Q. Okay. What was that HRC coater inside the  
13 circle that you put there to designate?

14 A. Just to make a fine definition that it was,  
15 in fact, an HRC coater.

16 Q. And what designated it in your mind as an HRC  
17 coater?

18 A. The arrangement of the anilox roll relative  
19 to the plate and/or blanket.

20 Q. The dual roller carriage?

21 A. That's correct.

22 Q. Okay. We have been produced several  
23 drawings, Mr. Rendleman, similar to what you have in  
24 front of you there, 17, where we'll have an HRC coater  
25 and then we'll see a Heidelberg press and we'll see

1 other types of retraction systems all on one drawing.

2 Okay?

3 A. Yes, sir.

4 Q. Are these --

5 A. That's correct.

6 Q. -- composite drawings that you put together?

7 A. That is correct.

8 Q. And did you put these composite drawings  
9 together -- why did you put them together in that  
10 fashion?

11 A. After Mr. DeMoore asked me to put a coater  
12 head between the printing units, I began thinking  
13 about and then eventually drawing methods that I could  
14 do this with --

15 Q. Okay.

16 A. -- or ways I could do it.

17 Q. I think you might have misunderstood my  
18 question. I have in front of me drawings. Okay?

19 A. Okay.

20 Q. And the drawings will depict several  
21 different structures.

22 A. Okay.

23 Q. For example, this drawing that you see in  
24 front of you has two different structures.

25 A. It does.

1 Q. It's got an HRC coater, and then it's got a  
2 rack back with a linear rack back arrangement. Do you  
3 see that? My question is very simple. Was this  
4 drawing when it was originally made, was it made like  
5 that, or did you put these together from two separate  
6 drawings?

7 A. Sir, I added to these arrangements. I didn't  
8 do it at any one time.

9 Q. You added to the arrangement. So I  
10 understand, you didn't do the HRC coater and then this  
11 rack back at the same time?

12 A. That is correct. I did not do them at the  
13 same time.

14 Q. And my question is to you, why do they show  
15 up on these drawings on the same page?

16 A. Rather than redraw, I would just add to to  
17 what I was drawing at the time. I would formulate  
18 ideas and then add them to the drawing.

19 Q. And these are drawings that came off your CAD  
20 system?

21 A. This is correct.

22 Q. Okay. And so how are these drawings  
23 maintained in the CAD system? Under what part number  
24 or how are they maintained?

25 A. These are under the subdivision C; back slash

1 drawings, back slash HRC, is how I initially put those  
2 in. They have, I believe, been rearranged. But I  
3 can't positively say that.

4 Q. And how are they now stored in the CAD  
5 system?

6 A. I can't positively say from here. I'd have  
7 to search.

8 Q. When were they rearranged?

9 A. I don't recall that date.

10 Q. Were you involved in that?

11 A. The rearrangement of the part numbers? No,  
12 sir.

13 Q. Right. Who would have done that?

14 A. I can't honestly say. I don't know.

15 Q. Okay.

16 MR. PINKERTON: Oh, there's one more,  
17 right? No. That one doesn't.

18 Q. (By Mr. Pinkerton) Last one I'm going to ask  
19 you about. It's document 01144, and we'll mark it as  
20 the next exhibit.

21 (Exhibit 21 marked)

22 Q. (By Mr. Pinkerton) Which for the record is  
23 Exhibit 21. Can you identify that for us?

24 A. Yes, I can.

25 Q. What's the date on that document, please,



1 sir?

2 A. The date is 2-15-95.

3 Q. And do you see handwriting up in the upper  
4 left-hand corner of that document?

5 A. I do.

6 Q. And whose handwriting is that?

7 A. That's mine.

8 Q. Okay. And approximately when did you put  
9 that handwriting on that document?

10 A. Approximately 07 of 2000.

11 Q. Okay.

12 MR. PINKERTON: Okay. We're at a decent  
13 stopping place, so we'll go ahead and stop now.

14 THE VIDEOGRAPHER: We're off the video  
15 record, 5:32, tape two. Excuse me. Tape three.

16 (Off the record)  
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# CORRIGENDUM

**[Disregard if signature waived]**

CHANGE/REASON

[illegible]

**I,**  
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of the  
County of  
State of  
this 1st day of  
1998.

**Signature of Witness**

COUNTY OF \_\_\_\_\_

SUBSCRIBED AND SWORN TO by the said witness, \_\_\_\_\_  
on this the \_\_\_\_\_ day of \_\_\_\_\_.

**Notary Public in and for the State of Texas**

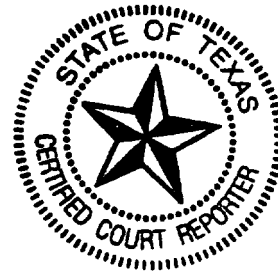
COUNTY OF DALLAS                      X

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GIVEN UNDER MY HAND AND SEAL OF OFFICE, on this

6<sup>th</sup> day of October, 2000.

Pam Durrant  
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FULLER & ASSOCIATES, INC.  
1201 Elm Street  
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Dallas, Texas 75207



My commission expires: 12-31-00

Asg No 5041  
Job Ref No 1649

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**Lawyer's Notes**

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FOUO 36 CFR 26.64

EXHIBIT C-2

## EXHIBIT C-2

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF TEXAS  
DALLAS DIVISION

PRINTING RESEARCH, INC.  
AND HOWARD W. DEMOORE,  
Plaintiff

X  
X  
X  
X  
X  
X  
X  
X  
X

VS.

CIVIL ACTION NUMBER  
3-99CV2254-M

WILLIAMSON PRINTING  
CORPORATION, BILL L. DAVIS  
AND JESSE S. WILLIAMSON,  
Defendants

CONFIDENTIAL EXCERPT TO THE  
VIDEOTAPED ORAL DEPOSITION

OF

RONALD RENDLEMAN

September 28, 2000

ANSWERS AND DEPOSITION OF RONALD RENDLEMAN,

produced as a witness at the instance of the  
Defendants, taken in the above-styled and numbered  
cause on the 28th day of September, 2000 at 9:57 a.m.,  
before Pam Durrant, a Certified Shorthand Reporter in  
and for the State of Texas, via machine shorthand, at  
the offices of Locke Liddell & Sapp, located at  
2200 Ross Avenue in the City of Dallas, County of  
Dallas, State of Texas.

**COPY**

1  
2  
3  
4 MR. HARRIS: We have conferred. And of  
5 course, there is a protective order which we invoke.  
6 This is very confidential information. Okay?

7 MR. PINKERTON: Okay.

8 MR. HARRIS: Now, having said that,  
9 you're permitted to ask it which you do anyway, and he  
10 is permitted to answer the question.

11 MR. PINKERTON: All right.

12 MR. HARRIS: I'll withdraw the  
13 objection.

14 Q. (By Mr. Pinkerton) Do you recall the  
15 question?

16 A. Let's review the question, please, sir.

17 MR. PINKERTON: Pam, you want to do it?

18 (Text read back)

19 Q. (By Mr. Pinkerton) Okay.

20 A. I have knowledge, but I don't know where  
21 they're -- where they're located, sir.

22 Q. You have knowledge that some of the units  
23 have been sold?

24 A. That's correct.

25 Q. Do you have knowledge of the customers?

1 A. No, sir.

2 Q. How many units do you understand have been  
3 sold?

4 A. Approximately four units.

5 Q. Four units. Did you supervise the  
6 manufacturing of those units or fabrication of them?

7 A. Yes, sir.

8 Q. And give me the time periods that those four  
9 units were built, approximately.

10 A. 1996, perhaps one. 1997, perhaps two. 1998,  
11 one.

12 Q. Okay.

13 A. That's all.

14 Q. Do you know whether or not those units are  
15 being used in an interstation position on the  
16 companies' presses that bought them?

17 A. I have -- no, sir, I don't know that.

18 Q. Okay. Do you know the types of presses on  
19 which those units were installed?

20 A. Heidelberg and Roland 700.

21 Q. What model of Heidelberg, do you know?

22 A. No, sir.

23 Q. Did you have to make any adjustments for the  
24 manufacturing of the unit that went for the Heidelberg  
25 press?



1 A. Yes, sir.

2 Q. What adjustments did you have to make on it?

3 A. I don't recall details of that.

4 Q. Do you recall whether they were to any  
5 particular component of the coater or the overall  
6 dimension or base plates or what?

7 A. I'd say componentry.

8 Q. Individual components?

9 A. Yes.

10 Q. And do you recall which components?

11 A. Not entirely.

12 Q. Do you recall any of the components?

13 A. Mounting plate.

14 Q. And what had to be adjusted to the mounting  
15 plate as best you can recall?

16 A. Whole relocation.

17 Q. Was it the mounting plate that you made to go  
18 on a -- as best you know, to go on a printing unit as  
19 opposed to a coating unit?

20 A. Printing unit.

21 Q. Printing unit?

22 A. Yes, sir.

23 Q. Okay. The Roland 700 press, the unit or  
24 units that you made to go on the Roland 700, what  
25 model Roland was it?

1 A. I recall a 700.

2 Q. Okay. Did you get dimensions on that Roland  
3 700 before you manufactured that device?

4 A. Are you asking if I?

5 Q. Yes, you personally.

6 A. No, I -- no, sir.

7 Q. Did someone at Printing Research?

8 A. This is correct.

9 Q. Who got the dimensions?

10 A. A gentleman named Max Hess.

11 Q. And who is Max Hess?

12 A. He's a mechanical designer.

13 Q. How did he get those dimensions?

14 A. Physically on-site.

15 Q. He went out there and made measurements?

16 A. That is correct.

17 Q. Okay. Those -- are those measurements that  
18 Max Hess made the same types of measurements that you  
19 made before you built the units for Williamson?

20 A. That's difficult to answer that, sir. Some  
21 are required. Others are -- depends on the unit.

22 Q. Okay. With respect to the units that were  
23 manufactured for Williamson, did you receive  
24 information about these specifications or requirements  
25 that Williamson wanted for those units?

1 A. No, sir.

2 Q. Did you -- did you talk to Bill Davis at all  
3 about any specifications and requirements for those  
4 units?

5 A. Not that I recall.

6 Q. Did you talk to Jesse Williamson about that?

7 A. No, sir.

8 Q. Did you talk to John Bird about that?

9 A. I don't recall that either, sir.

10 Q. So you don't recall getting any information  
11 from anybody, either at Printing Research or  
12 Williamson --

13 A. No, sir.

14 Q. -- in regard to their specifications or  
15 requirements --

16 A. No, sir.

17 Q. -- for those units?

18 A. That's correct.

19 Q. Did you get any information from anybody  
20 about specifications for those units?

21 A. Yes.

22 Q. Who is that?

23 A. Within, David Douglas, people at PRI.

24 Q. And what did Mr. Douglas tell you?

25 A. Through Howard he asked me to go and make

1 measurements on the printing press that were going on.

2 Q. And the measurements, is that all the  
3 information that you got from Williamson about their  
4 requirements?

5 A. Not all, no.

6 Q. Okay. What else did you understand about  
7 Williamson's requirements?

8 A. Where to put the unit.

9 Q. Where on the press to put the unit?

10 A. That's correct.

11 Q. And when did you get that information?

12 A. I don't recall the exact date of that.

13 Q. Those units that went on the Heidelberg press  
14 and the Roland 700 press, do you know who paid for  
15 those units?

16 A. No, sir.

17 (End of confidential testimony.)  
18  
19  
20  
21  
22  
23  
24  
25

TEMP. 25.7°C

# CORRIGENDUM

Asg No 5041

# CORRIGENDUM

**[Disregard if signature waived]**

PAGE

LINE

CHANGE/REASON

[illegible]

I, \_\_\_\_\_, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

**Signature of Witness**

STATE OF TEXAS

COUNTY OF \_\_\_\_\_

SUBSCRIBED AND SWORN TO by the said witness, \_\_\_\_\_,  
on this the \_\_\_\_\_ day of \_\_\_\_\_.

**Notary Public in and for the State of Texas**

THE STATE OF TEXAS     X  
COUNTY OF DALLAS       X

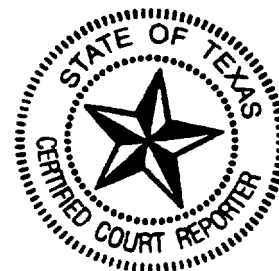
This is to certify that I, Pam Durrant, a Certified Shorthand Reporter in and for the State of Texas, reported in shorthand the proceedings had at the time and place set forth, and that the above and foregoing pages contain a full, true and accurate transcript of the confidential portions asked to be set out for the Court.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on this the 6<sup>th</sup> day of October of 2000.

Pam Durrant  
PAM DURRANT, CSR #1746  
Certified Shorthand Reporter  
in and for the State of Texas  
Fuller and Associates, Inc.  
5260 Renaissance Tower  
1201 Elm Street  
Dallas, Texas 75270

My commission expires: 12-31-2000

Asg No 5041  
Job Ref No 1649



PROD. 942760

1



RONALD M. RENDLEMAN

## Resume of Qualifications

4331 Royal Ridge Drive  
Dallas, TX 75229Home: (214) ~~358-1416~~  
214 358-2175

## JOB OBJECTIVE

Supervisor, Mechanical Assembly with  
opportunity to advance to Manufacturing  
Management.

## EXPERIENCE

May 1990 to  
Oct 1991

DSC Communications Corporation  
1000 Coit Road  
Plano, TX 75075 (214) 519-3703  
Manufacture of Communication Equipment

Mechanical Assembly Supervisor - Supervised 18  
employees - reported to Mechanical Assembly Manager.  
Responsible for all wirewrap operations and the  
testing of backplanes. Also responsible for  
assembly and testing of power units, disk drives,  
and alarm module units for Tandem assembly  
requirements.

Jan 1989 to  
April 1990

Advanced Graphics Technologies, Inc.  
Division of Rotation Dynamics Corp.  
942 Minters Chapel Road  
Grapevine, TX 78051 (214) 481-8561  
Roller Manufacturing and Hard Industrial Coatings  
Printing Industry

Operation Manager - Supervised 21 employees -  
reported to General Manager. Responsible for  
plant scheduling, monthly requirements for manu-  
facturing, and the chrome and copper plating  
of cylinders and rollers. Other major responsi-  
bilities included the quality assurance program  
and the mechanical design for a retrofit type  
oscillating roller. Also provided timely quotations  
per request from regional customers and sales  
personnel within the Rotation Dynamics organization.

Feb 1988 to  
Dec 1988

Epic Products Intl. Corp.  
345 Regal Row  
Dallas, TX 75247 (214) 688-0666  
Manufacture of Printing Equipment

Mechanical Engineering Manager - Supervised 14  
employees which included 4 mechanical designers,  
6 draftsmen and 4 service and installation personnel.

EXHIBIT

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Reported to the General Manager. Responsible for the complete design and details for a patented four roller lithograph printing unit. Also responsible to the manufacturing manager to complete the design in a time frame to allow adequate time to manufacture the product and meet the delivery schedule.

Aug 1967 to  
Jan 1988

Dahlgren Manufacturing Corporation  
P.O. Box 115140  
Carrollton, TX 75011-5140 (214) 245-0035  
OEM Mfg of patented printing machinery

Manufacturing Manager 1972-1988 - reported to General Manager.  
Responsible for plant scheduling, machine shop production, assembling the product to include electrical and mechanical quality assurance. Increased the shop work force from a single shift operation of less than 100 employees in 1972 to a two shift operation with over 180 employees by 1979. During this growth period, the corporation approved my request to spend 3.5 million for capital equipment and design the production line and assembly areas for a move from facilities of 50,000 sq. ft. to 400,000 sq. ft.

Mechanical Designer from 1967-1972 - reported to Engineering Manager.

Responsible to design, detail and furnish installation drawings for the manufacture of printing equipment incorporation the concept of a patented 3 roller motor driven system.

Oct 1963 to  
July 1967

Military Service - U.S. Army  
Helicopter Pilot, Republic of Vietnam,  
attained rank of Captain, Honorably discharged and  
top secret clearance

#### EDUCATION

Graduated, Highland Park High School, Dallas, Texas

Graduated University of Texas at Arlington, 1963  
Bachelors Degree Business Administration,  
Minor in Engineering

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REFERENCES

Phil Acquaviva

1135 Noel Road.  
Dallas, TX 75240  
(214) 980-8638

Ed Atkinson

V.P. General Manager, Sun Dahlgren  
14805 Trinity Blvd.  
Ft. Worth, TX 76155  
(817) 267-7891

Sonny Croney

C & C Enterprises  
Rt. 2, Box 242  
Whitesboro, TX 76273  
(214) 564-6053

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US005370976A

**United States Patent** [19]  
**Williamson et al.**

[11] **Patent Number:** 5,370,976  
 [45] **Date of Patent:** Dec. 6, 1994

[54] **METALLIC COLOR PRINTING PROCESS**

[75] **Inventors:** Jesse S. Williamson, Dallas; George V. Barnaby, Irving; Gary V. Doughty, Dallas, all of Tex.

[73] **Assignee:** Williamson Printing Corporation, Dallas, Tex.

[21] **Appl. No.:** 887,510

[22] **Filed:** May 22, 1992

[51] **Int. Cl.:** G03C 7/00; G03C 5/00; G03F 9/00; H04N 1/21

[52] **U.S. Cl.:** 430/358; 430/359; 430/22; 430/30; 358/798; 358/534; 358/536

[58] **Field of Search:** 430/358, 359, 30, 293, 430/301, 21, 143, 43, 44, 347, 106/19 R; 358/75, 80, 534, 536, 298

[56] **References Cited****U.S. PATENT DOCUMENTS**

3,663,221	5/1972	Higgins et al.	430/22
4,011,812	3/1977	Julian Lecha	101/177
4,149,183	4/1979	Pellar et al.	358/75
4,180,407	12/1979	Gibson et al.	106/26 A
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,918,622	4/1990	Granger et al.	358/298
4,924,301	5/1990	Surbrook	358/75
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/75
5,053,887	10/1991	Thompson	358/457
5,144,419	9/1992	Nakatsuka et al.	358/75
5,166,809	11/1992	Surbrook	358/456

**OTHER PUBLICATIONS**

*Reproduction Review*, Oct. 1965, pp. 6, 10.

*The Photoengraver Bulletin*, Nov. 1949, pp. 43-44

"Pantone® Metallic Integrated Process Color Selector", by Pantone Metallic-Buntdruck-Farbskala (Pantone)

"Lithographic Guidelines For Metallic Integrated Process Printing" (Crofield).

*Primary Examiner*—Charles L. Bowers, Jr

*Assistant Examiner*—J. Pasterczyk

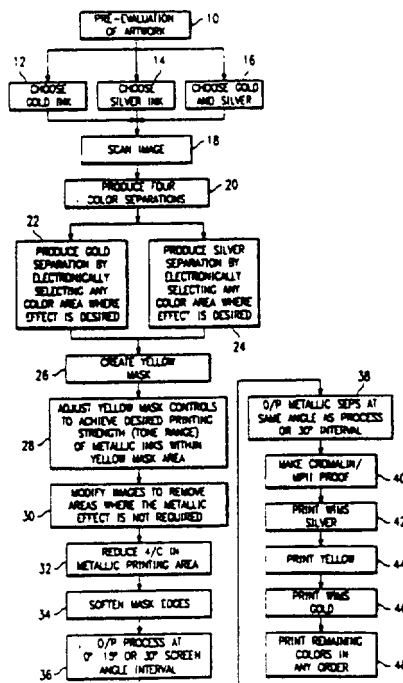
*Attorney, Agent, or Firm*—Jones, Day, Reavis & Pogue

## [57]

**ABSTRACT**

A method of reproducing on a substrate an image incorporating metallic inks involves scanning (18) the image to be reproduced and creating (20) four color separations of the scanned image. Metallic gold and/or metallic silver color separations (22, 24) are created by electronically selecting any color area where the effect is desired. Next, the color separations are edited by creating (26) an electronic yellow mask of the image and adjusting (28) the desired tonal range of the metallic areas. The mask edges of each color separation can also be softened (34). The scanner then outputs (36, 38) the separations to film. The image is then reproduced by printing each of the process color separation films (44, 48) and the metallic separation films (42, 46) onto a substrate.

**12 Claims, 2 Drawing Sheets**



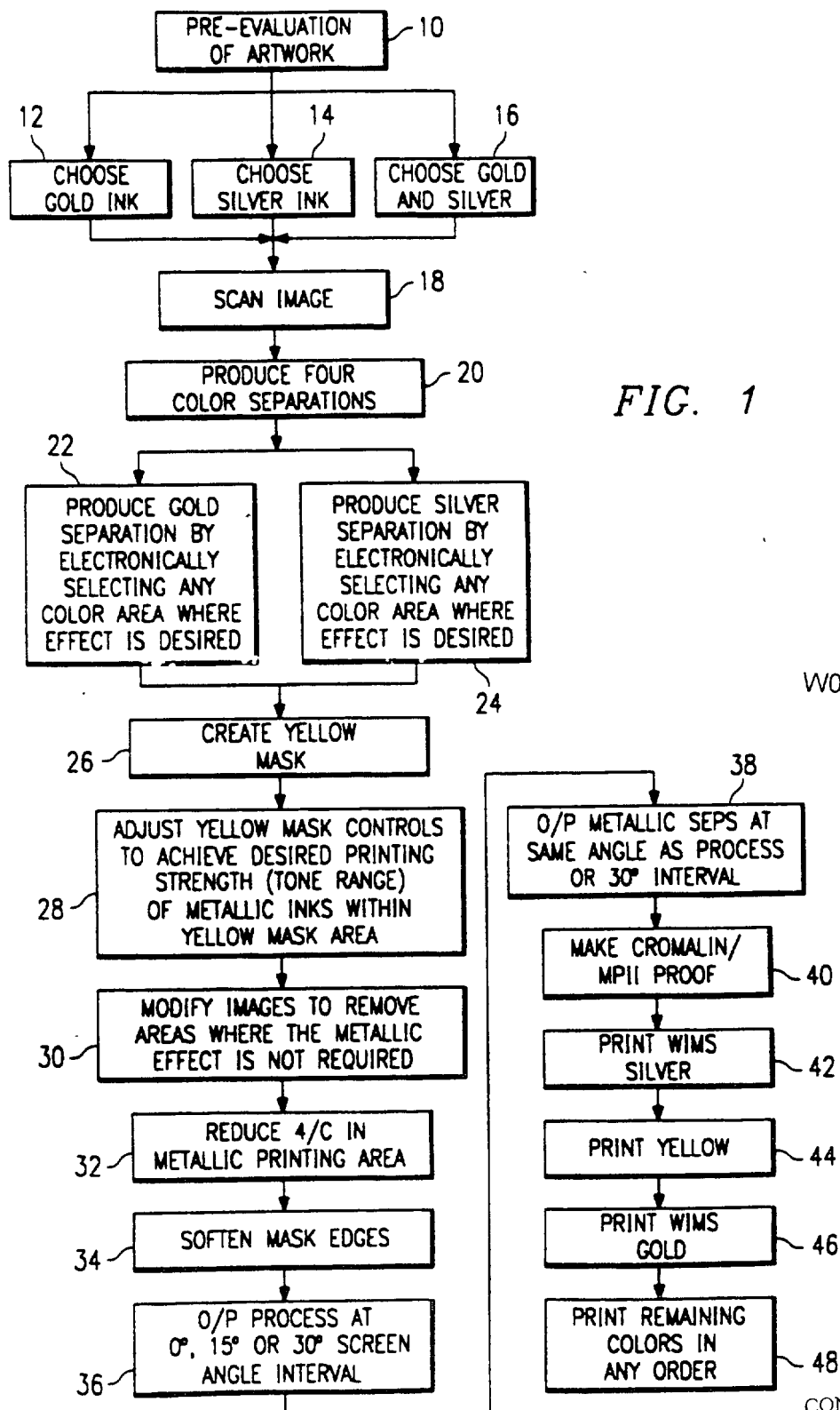
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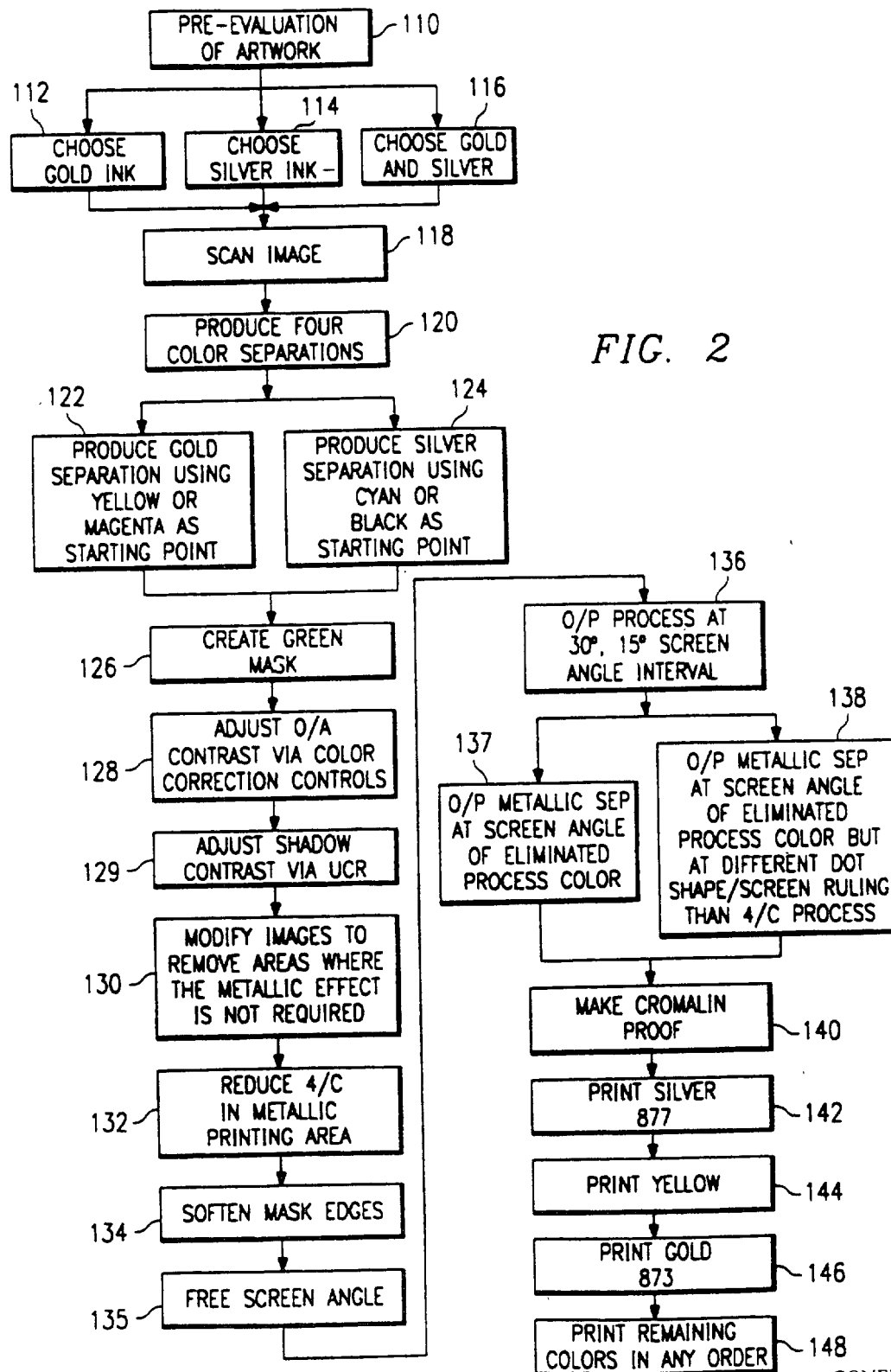
PERGAD Bayonne N.J.

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## METALLIC COLOR PRINTING PROCESS

### TECHNICAL FIELD OF THE INVENTION

The present invention relates to a metallic color printing process. Specifically, this method produces an improved metallic image by printing the subtractive primary colors, black, metallic gold and/or metallic silver at four screen angles.

### BACKGROUND OF THE INVENTION

The reproduction of color was first achieved by Scottish physicist James Maxwell in the mid 1850's. Maxwell photographed a scene three times, once through a red filter, once through a green filter, and once through a blue filter. These black-and-white negatives were contacted to produce positives that were then mounted as slides. Each slide was placed in a different projector and the images were focused together on a screen. A red, green, or blue filter was placed over the lens of each respective projector, thus producing a color image on the screen.

The first single film image for color photography was produced by Louis Ducos du Hauron in France in the late 1860's. In his system, the image on a black-and-white panchromatic emulsion was broken up by a series of red, green, and blue transparent dots or lines that formed a screen in front of the emulsion. The dots and lines were so small that they could not be resolved by the eye. After exposure, the film was reversal-processed to yield a colored positive transparency. The additive-color transparency is still used by the Polaroid Corporation with their 35-ram Polachrome slide process.

The development of the subtractive color systems was also pioneered by du Hauron. He suggested making separation negatives through red, green, and blue filters, then making positive transparencies from each, dyeing them with colors that absorb each respective primary color (i.e. cyan, magenta, and yellow). This subtractive method is difficult to use because it requires the accurate registration of the colored positives or the accurate registration of images from dyed positive matrices. The solution was a three-emulsion film, each layer made sensitive to a different color (red, green, or blue) and then dyed a different color (cyan, magenta, or yellow) in processing. The first successful film of this type was Kodachrome, introduced by the Eastman Kodak Company in 1935.

Printed color reproduction is based on many of the same principles as film color reproduction. Instead of a continuous image, allowed by the film medium, a series of dots are printed on a substrate. These dots are printed in the subtractive primary colors of cyan, magenta, and yellow. Additionally, black is used to adjust the contrast of the image. In the subtractive process, a white substrate is used and red, green, and blue are essentially subtracted to achieve black. By contrast, in the additive system, a black background (i.e. a blank TV screen) is used, and red, green, and blue are added to achieve white. In the additive system the following combinations create the following results:

Red + Green = Yellow

Red + Blue = Magenta

Green + Blue = Cyan

Red + Green + Blue = White

In the subtractive process, the following is true:

White + Yellow + Cyan = Green

White - Magenta - Cyan = Blue

White - Magenta + Yellow = Red

White + Yellow + Magenta + Cyan = Black

Moreover, each subtractive primary color when added with white produces that same subtractive primary color.

The objective in printing is to produce yellow, magenta, and cyan printing plates that are negative records of the amounts of blue, green, and red in the original. This is achieved by first photographing the original, in turn, through blue, green, and red filters. These films may then be converted into a halftone dot image suitable for a given printing process. The films are then used to make the image carriers, which may be plates, cylinders, or stencils. Each plate is inked with its appropriate ink, which is then transferred to a white substrate.

The image produced is largely dependant upon dot size and orientation. Orientation is defined primarily by the screen angle of the dot. The screen angle is the angle at which the rulings of a halftone screen are set when making screened images. In other words, the screen angle of a dot is the angle of the line which bisects the often elliptical dots. Standard screen angles have been established for various colors of dots: Magenta (45°), Cyan (75°), Yellow (90°), Black (105°). The interaction of screen angle, color, and dot size effect the quality of the reproduction.

Printing metallic colors, such as metallic gold and metallic silver, poses additional problems. Gold has typically been treated as a shade of yellow, while silver has been treated as a shade of gray. Thus the brilliance of these colors is diminished by the blending of hues which occurs in a four color printing system.

A system known as Metallic Integrated Printing Process (MIPP) has been developed for the reproduction of metallic colors by Eckart-Werke Metal Pigments and Powders of Furth, Bayern, Germany. This system requires numerous steps. First, a designer marks-up the artwork to be copied to designate those areas where the MIPP system is required, i.e. metallic colored areas. Next, a conventional four color separation is produced of the artwork. Each separation is then compared to the original artwork to see which separation gives the best representation of the metallic colors. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether gold or silver is required. Most shades of gold can be obtained from silver and yellow. However, a high percentage of yellow on silver greatly reduces the metallic brilliance. In addition, silver has a grey value of approximately 30% that tends also to reduce the metallic brilliance and thereby dirty colors.

After the four color separations are made, two separations used to print the metallic inks must be developed from two of the four separations. Typically the cyan or black separation will give the best basis for developing the silver separation and either the yellow or magenta for the gold separation. The selected separations are then duplicated to become the gold and silver separations. These separations may require modification to remove image areas where a metallic effect is not required. Comparison with the original transparency may indicate the need to enhance some image areas so as to improve the final metallic effect. The MIPP system anticipates the softening of mask edges of the metallic colors to avoid sharp cut-out effects when the final result is printed. In practice, the task of softening of

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mask edges can be handled using electronic image processing equipment.

With the MIPP system, a screen angle must be freed for each of the metallic inks to avoid problems of screen clash and resulting moire effects. This can be accomplished by using achromatic or Under Color Removal, ("UCR") color separation techniques where the process color with the lowest value is eliminated in favor of black. UCR involves the technique of reducing the cyan, magenta, and yellow content in neutral grey shadow areas of a reproduction and replacing them with black ink so that the reproduction will appear normal but will use less process color ink. (From the Complete Color Glossary by Miles Southworth, Thad McIlroy and Donna Southworth, Copyright 1992; Published by The Color Resource, Livonia, N.Y. ISBN 1-879847-01-9). Often the cyan will have the lowest value and is the color to eliminate. Since both gold and silver have a process color value, the four conventional separations will need to be modified if the finished print is not to look over-colored or dirty. For example PANTONE 873, the MIPP gold standard, has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. So if the gold areas are to look realistic these colors must be reduced proportionately. The separations may also require modification as the metallic inks have a grey scale value and a failure to take this into account may result in a dirtying of the final colors due to a reduction in their metallic brilliance.

A MIPP image is printed using standard screen angle intervals of 30° or 15°. The screen angle used for a metallic ink is the same as that for the process colors eliminated in favor of a metallic ink. The MIPP system may use different dot shapes to reduce the risk of screen clash. A round dot, with no preferred direction, is typically used for the metallic ink, while an elliptical dot works for the standard process inks. The color standards chosen for MIPP come from the PANTONE System of matched metallic inks, with PANTONE 873 as the gold standard and PANTONE 877 as the silver standard.

Because metallic inks are opaque, they are normally printed before the transparent process colors. But with MIPP the sequence is changed slightly so that the first three colors down are silver, yellow, and gold, respectively. The remaining three process colors are printed in any order. The first three colors, in this order, are very important if the finished print is to look realistic. The use of yellow on silver is necessary to obtain yellow, green and orange metallic effects. Yellow, under gold, is also necessary to maintain the correct tonal values in the highlight areas. Yellow, printed in this way, provides a transition from gold to non-metallic parts of the image. On the other hand, if yellow is printed on top of the gold, there is a loss of metallic sheen without any compensating color benefit.

In summary, the MIPP system presents several disadvantages. First, it requires excessive handwork to create the color mash. Second, the MIPP system requires the elimination of one of the subtractive process colors to free up a screen angle for a metallic color. Third, the MIPP system only allows the printing of four screened colors in any given area. Last, the PMS 873 standard gold ink used by the MIPP system is a dirty, or less brilliant gold ink. This dirty look limits the gold color reproduction to the inherent dirty look even if no other color ink is printed in that area. This dirty look also

necessitates additional color correction of the subtractive primaries. Therefore, a need exists for a printing process which maximizes the appearance of metallic colors. Such a process should allow the use of six colors printed at four screen angles. Moreover, such a process should not limit the number of colors in any given area to four as with the MIPP System.

#### SUMMARY OF THE INVENTION

The present invention relates to the Williamson Integrated Metallic System (WIMS) developed to allow six color printing using yellow, magenta, cyan, black, metallic silver, and/or metallic gold. The WIMS System creates a realistic metallic gold or metallic silver effect using the subtractive primary colors, black, silver and/or gold. The WIMS method comprises a number of steps. The subject to be reproduced is first scanned by a standard scanner and four color separations are created. The original art is then edited to achieve the required metallic effect. Editing comprises the steps of creating a yellow mask, reviewing an electronic version of the image produced by the scanner, determining the amount of contrast between heavy and light metallic regions on the image by one skilled in the art based on past experience, and then sending that contrast information back to the scanner. A "yellow mask" is created to isolate areas where a metallic effect is desired. This "yellow mask" allows the operator to select these areas based on the color and tonal region of the original. For example, those areas appearing neutral are appropriate for silver metallic, while those areas appearing high yellow with a red component are appropriate for the gold metallic. Additional modification of dot size in these isolated areas may be required to avoid moire and reduction in metallic brilliance of the final colors. These colors can be printed at four screen angles: cyan (75°), magenta (45°), silver (45°), gold (75°), yellow (90°), and black (105°).

In the WIMS System, a cleaner, or more brilliant gold color ink is used, wherein the process color value is less than 25% for magenta and less than 5% for cyan. This should diminish any dirtiness caused by the process color values of adjacent primary colors. Additionally, any harsh edge effects caused during printing may be softened during the electronic masking stage. During printing, the silver separation can be printed at the same screen angle as the magenta, while the gold separation can be printed at the same screen angle as the cyan separation.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, and for further details and advantages thereof, reference is now made to the following Detailed Description taken in conjunction with the accompanying drawings, in which:

FIG. 1 illustrates a flow chart of the WIMS System for reproduction of metallic color; and

FIG. 2 illustrates a flow chart of the prior art MIPP System.

#### DETAILED DESCRIPTION OF THE DRAWINGS

The present invention relates to a metallic color printing process, also known as the WIMS System, that overcomes many of the disadvantages found in the prior art. Referring to FIG. 1, a flow chart illustrates the steps involved in the present method.

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A first step involves pre-evaluation at step 10 of the subject to determine desired effects and proper placement of metallics in process reproduction. Metallic gold can be chosen at step 12, metallic silver can be chosen at step 14, or a combination of both metallic gold and metallic silver can be chosen at step 16. Next, the image can be scanned at step 18 by a scanner which, in turn, produces at step 20 four color separations which are electronically viewed on the scanner display. The scanner acts as both an input device and an output device. In other words, the artwork is input to the scanner. The scanner can then output color separations or film used to recreate the artwork. The scanning step involves the application of 75% to 100% to the scanner set-up and the scanning of the image. Then, the PCR is removed from the scanner set-up and the image is scanned to an "Imagedit", an electronic color correction machine, produced by the Crosfield Co. of Hemel Hempstead, England.

The original artwork is evaluated in a well known manner by one skilled in the art to determine the color areas in which the metallic effect is desired. A gold separation can be produced at step 22 by electronically selecting any color area where the effect is desired. Likewise, a silver separation can be produced at step 24 by electronically selecting any color area where the effect is desired. Typically, the cyan or black areas of the original art will be the basis for developing the silver printing whereas yellow or magenta areas of the original art will form the starting point for creating the gold printing. It is emphasized that either the gold or silver separations may be produced by selecting any color area where the effect is desired.

Using the Crossfield Imagedit, a "yellow mask" can then be created at step 26 to isolate the areas where a metallic effect is desired from the rest of the separation. The "yellow mask" function gives the ability to select the desired areas electronically based on the tonal region or bandwidth of the original as well as the desired color region. Creating a yellow mask entails several steps. First, an electronic version of the image produced by the scanner displays the contrast between a heavy metallic region and a light metallic region on the image. For example, neutrals are appropriate for silver, while high yellows with a red component are appropriate for gold. The yellow mask controls can be adjusted at step 28 to achieve desired printing strength (tonal range) of metallic inks within the yellow mask area. These controls allow the adjustment of slope, gain, and rolloff of the image within the yellow mask area.

Next, the Imagedit computer creates six revised color separations in a well-known manner; one each for yellow, cyan, magenta, black, gold and silver. Once these electronic masks are created, further modification at step 30 of the isolated area may be required. For example, such modifications may increase or reduce the printing dot size of the metallic separation and/or adjust at step 32 the amount of four color process ink printing over the newly created metallic to compensate for the reduction in brilliance caused by the additional metallic color in the reproduction. Additionally, in a given original, there may be areas of similar color where a metallic effect is desired in one area but not the other. For example, a gold watch requires a metallic gold, while a golden retriever would not. Due to this anomaly, further electronic manipulation of the image may be required to eliminate metallic ink in unwanted areas. Moreover, because all masking is performed electroni-

cally, it is possible to soften at step 34 any harsh edge effects in the final reproduction via mask smoothing or tonal integration techniques.

Next, this information is sent back to the scanner which outputs at step 36 the subtractive process colors and the metallic separations. The MIPP standard for screening is to eliminate (by hand masking) one of the process colors in metallic areas to free-up a screen angle, or to produce the metallic separations at a line screen resolution different than the process colors to reduce moire effects. However, in the WIMS process, the subtractive process colors are output at step 36 at 0°, 15°, and/or 30° screen angle intervals. An interval is the spacing between any two screen angles. The metallic color separations are output at step 38 at the same angles as the subtractive process colors or at 30° intervals. The gold separation can be produced at the same screen angle as the cyan separation. Likewise, the silver separation can be produced at the same angle as the magenta separation. Therefore, with WIMS reproductions, six colors can be printed at four screen angles. For example, cyan can be printed at 75°, magenta at 45°, silver at 45°, gold at 75°, yellow at 90°, and black at 105°. Both process and metallic separations are produced at the same line screen resolution. Typically, there are no problems with moire effect.

The next step involves metallic inks, a gold ink, a silver ink, or both gold and silver. The Pantone MIPP standard for gold ink is PMS 873. This ink printed solid has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. For WIMS reproduction, however, a much more brilliant gold ink is used, wherein the magenta and cyan process equivalents are greatly reduced. This was selected under the rationale that a pure gold ink area of WIMS gold could be reduced in brilliance, but a pure PMS 873 ink area could not be made any more brilliant than the inherent bronze color of the ink. This same color compensation theory also applies to silver areas where a calculated reduction in cyan or black generally occurs.

Prepress proofing at step 40 is accomplished via a combination of 3M Matchprint II (for process colors) and Dupont Cromalin (for metallics). After proofing, the artwork is reproduced by first printing at step 42 the WIMS standard for silver, then printing at step 44 yellow, then printing at step 46 the WIMS standard for gold, and finally printing at step 48 the remaining subtractive primary colors in any order.

FIG. 2 provides a flow chart of the MIPP process which is discussed in greater detail in the Background Section. In sum, the designer marks up the artwork to be reproduced to show where MIPP is required and the image is scanned at step 118. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether to choose at step 112 gold, choose at step 114 silver, or to choose at step 116 both silver and gold. The artwork is then scanned at step 118 by a scanner and a standard four-color separation is produced at step 120. Each separation is compared to the original to determine which gives the best representation of the metallic colors. A gold separation is next produced at step 122 using the screen angle of the process color that was eliminated in that area, as will be discussed in greater detail. Likewise, a silver separation can also be produced at step 124 using the screen angle of the process color that was eliminated in that area.

Variable	Mean	Standard deviation	Minimum	Maximum
Age	34.5	10.5	20	55
Gender	0.5	0.5	0	1
Marital status	0.5	0.5	0	1
Education	12.5	1.5	10	15
Income	15.5	5.5	10	25
Health status	0.5	0.5	0	1
Smoking status	0.5	0.5	0	1
Alcohol consumption	0.5	0.5	0	1
Exercise frequency	0.5	0.5	0	1
Stress level	0.5	0.5	0	1
Sleep quality	0.5	0.5	0	1
Work satisfaction	0.5	0.5	0	1
Life satisfaction	0.5	0.5	0	1
Depression score	0.5	0.5	0	1
Anxiety score	0.5	0.5	0	1
Quality of life score	0.5	0.5	0	1

A green mask is created at step 126 with the scanner and viewed on the scanner display. The overall contrast of the green mask can be adjusted at step 128 via the color correction controls. Shadow contrast can then be adjusted via undercolor removal (UCR). Next, the image is modified at step 130 to remove areas where the metallic effect is not required. The level of the four subtractive process colors can be reduced at step 132 in the metallic printing area. Mask edges can then be softened at step 134.

Next, a screen angle must be freed at step 135 for each of the metallic inks to avoid problems of screen clash and resulting moire effects. In other words, in any one area where a metallic ink is used, the subtractive primary color with the same screen angle must be eliminated or made solid. Thus, no more than four screened colors may appear in any one area of the reproduction. The scanner outputs at step 136 the subtractive process colors to film at 30° and 15° intervals. The scanner can then output at step 137 the metallic separations at a screen angle of an eliminated process color. Alternatively, the scanner can output at step 138 the metallic separations at the screen angle of the eliminated process color but at a different dot shape and/or screen ruling than the four subtractive process colors. Prepress proofing at step 140 is accomplished. After proofing, the artwork is reproduced by first printing at step 142 the PMS 877 standard for silver, then printing at step 144 yellow, then printing at step 146 the PMS 873 standard for gold, and finally printing at step 148 the subtractive primary colors in any order.

Although preferred embodiments of the invention have been described in the foregoing Detailed Description and illustrated in the accompanying drawings, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications, and substitutions of parts and elements without departing from the spirit of the invention. Accordingly, the present invention is intended to encompass such rearrangements, modifications, and substitutions of parts and elements as fall within the scope of the invention.

We claim:

1 In a method of half-tone dot printing a reproduction of a scanned image on a substrate with the four subtractive process colors of magenta, cyan, yellow, and black in a given area of the scanned image at only four screen angles, an improved method of incorporating metallic colors in said reproduction, the improvement comprising the steps of:

printing at least one metallic color in said given area at a selected one of the only four screen angles; and  
printing at least one of said four subtractive process colors in said given area at the same screen angle as said at least one metallic color such that said at least one metallic color and one process color are printed in said given area at the same one of said four screen angles so as to enable at least five colors to be printed at only said four screen angles.

2 A method as in claim 1 further including the steps of:  
printing a second metallic color in said given area at a second one of said four screen angles, and  
printing a second one of said four subtractive process colors in said given area at the same second one of said four screen angles as said second metallic color so as to have an additional metallic color and an additional process color printed in said given area

at said second one of said four screen angles so that up to six colors are printed at only said four screen angles.

3 The method of claim 1 of reproducing a scanned image on a substrate including incorporating metallic colors and further comprising the steps of:

producing four process color separations of the scanned image, each at one of said four screen angles,

producing at least one metallic color separation at the same screen angle as a corresponding first one of the four screen angles of the process color separations in said given area,

editing each process color separation and the at least one metallic color separation to obtain metallic color separation information;

outputting each process color separation to film creating a process color separation film,

outputting the at least one metallic color separation to film creating a first metallic color separation film, and

printing a reproduction of the scanned image on a substrate using the process color separation films and the at least one metallic color separation film such that both a metallic color separation and a process color separation are produced at the same screen angle.

4 The method of claim 3 of reproducing a scanned image on a substrate including metallic colors and further comprising the steps of:

producing a second metallic color separation at the same screen angle as a corresponding second one of the four screen angles of the process color separations in said given area,

editing the second metallic color separation to obtain metallic color separation information,

outputting the second metallic color separation to film creating a second metallic color separation film, and

printing a reproduction of the scanned image on a substrate using the process color separation film and the first and second metallic color separation films such that said first metallic color separation and a first process color separation are produced at an identical first screen angle and the second metallic color separation and second process color separation are produced at a second identical screen angle so as to enable up to six colors to be printed in the given area in only four screen angles.

5 The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a gold metallic color separation as the first metallic color separation, and

producing a silver metallic color separation as the second metallic color separation.

6 The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a silver metallic color separation as the first metallic color separation; and

producing a gold metallic color separation as the second metallic color separation.

7 The method of claim 4 wherein the step of editing further comprises the steps of:

reviewing an electronic version of the scanned image to determine regions of the image where metallic color is to be added,

creating a yellow mask for the given area to enable isolation of any region therein where metallic color is to be printed;

electronically adjusting the amount of contrast between the isolated regions to achieve a desired metallic color contrast between said isolated regions so as to obtain metallic color separation information, and

sending the metallic color separation information back to the scanner to provide half-tone dot signals.

8 The method of claim 4 wherein the step of outputting the at least one metallic color separation further comprises the step of outputting the first metallic color separation at the same screen angle as a first process color separation or at a 0°, 15°, or 30° interval therefrom.

9 The method of claim 4 wherein the step of outputting the second metallic color separation further com-

prises the step of outputting the second metallic color separation at the same screen angle as a second process color separation or at a 0°, 15°, or 30° interval therefrom.

10 The method of claim 3 wherein the step of editing further comprises softening an image edge of the process color separations and metallic color separations.

11 The method of claim 3 wherein the step of outputting the process color separations comprises outputting the process color separations onto film at 0°, 15°, or 30° screen angle intervals.

12. The method of claim 1 wherein the step of printing comprises.

- (a) printing the metallic silver onto the substrate,
- (b) printing yellow onto the substrate;
- (c) printing the metallic gold onto the substrate,
- (d) printing the remaining colors onto the substrate in any order

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**United States Patent** [19]

Davis et al.

[11] Patent Number: **5,630,363**[45] Date of Patent: **May 20, 1997**

[54] **COMBINED LITHOGRAPHIC/  
FLEXOGRAPHIC PRINTING APPARATUS  
AND PROCESS**

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[21] Appl. No.: **515,097**

[22] Filed: **Aug. 14, 1995**

[51] Int. Cl.<sup>6</sup> ..... **B41M 1/18; B41M 7/00;  
B41M 1/04; B41F 23/00**

[52] U.S. Cl. .... **101/141; 101/181; 101/183;  
101/424.1; 101/424.2; 101/479; 101/483;  
101/491; 101/DIG. 49**

[58] Field of Search ..... **101/135-138,  
101/141-143, 450.1, 174, 180, 181, 183,  
416.1, 424.1, 424.2, 479, 491, DIG. 29,  
DIG. 49, 483**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

2,499,870	3/1950	Luehrs	101/138
2,988,989	6/1961	Crawford	101/152
3,072,050	1/1963	Wolff	101/DIG. 49
4,011,812	3/1977	Lecha	101/176
4,056,056	11/1977	Gioi	101/152
4,180,407	12/1979	Gibson et al.	106/26
4,186,661	2/1980	Vieau	101/178
4,373,442	2/1983	Dahlgren et al.	101/207

4,373,443	2/1983	Matalia et al.	101/221
4,417,516	11/1983	Fischer	101/181
4,421,027	12/1983	Fischer	101/142
4,437,402	3/1984	Fischer	101/181
4,610,201	9/1986	Jeschke	101/DIG. 49
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,796,556	1/1989	Bird	118/46
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/80
5,144,419	9/1992	Nakatsuka et al.	358/75
5,178,678	1/1993	Koehler et al.	118/46
5,184,556	2/1993	Schaenble	101/483
5,370,976	12/1994	Williamson et al.	430/358

**OTHER PUBLICATIONS**

"Pontone® Metallic Integrated Process Color Selector, Pantone Metallic-Buntdruck-Farbskala", The Pantone Library of Color, 201 Pantone, Inc. 1990, pp. MIPP VI-VIII.

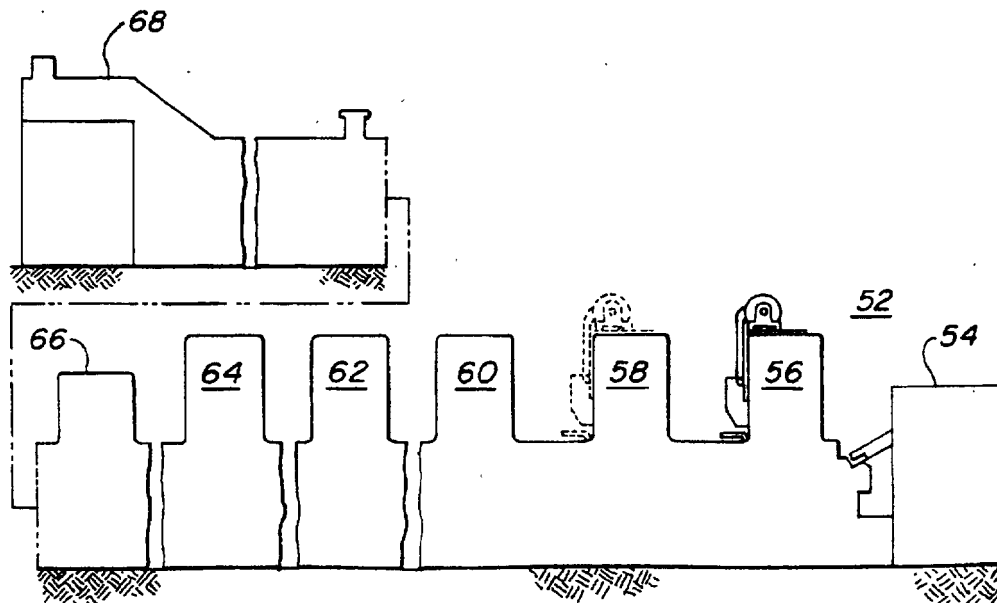
Primary Examiner—Stephen R. Funk  
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

[57]

**ABSTRACT**

A combined lithographic/flexographic printing process having a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process. One of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process.

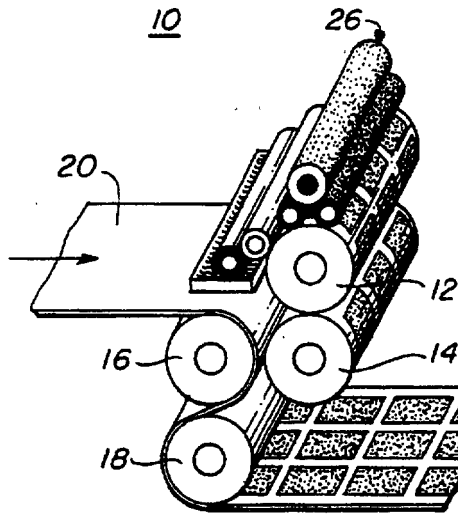
41 Claims, 1 Drawing Sheet



EXHIBIT

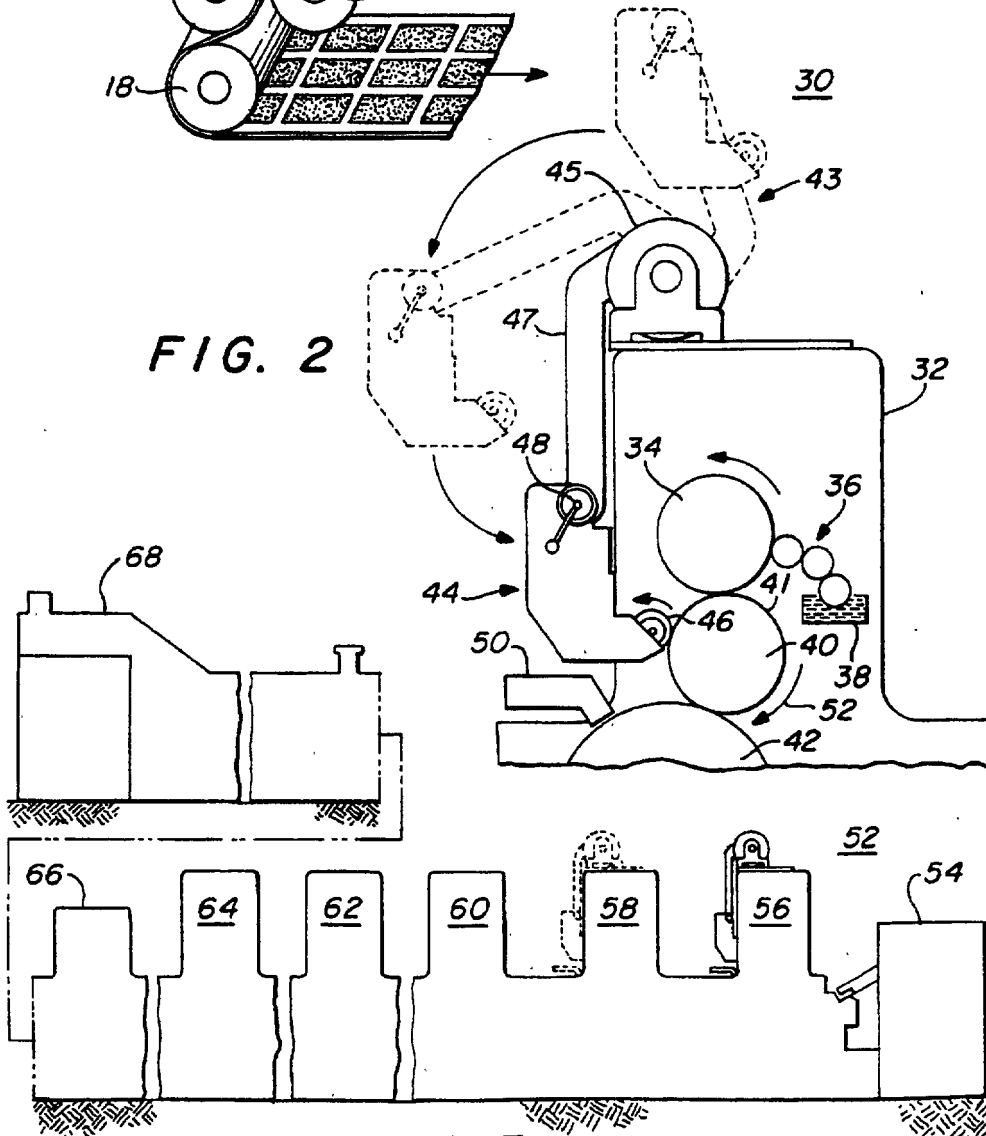
PEKAD-Bayonne N.J.

Rendleman 3



**FIG. 1**  
PRIOR ART

**FIG. 2**



**FIG. 3**

FIG. 1

# COMBINED LITHOGRAPHIC/ FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention relates in general to printing machines and processes and in particular to a combined lithographic/flexographic in-line printing apparatus and process.

### 2. Description of Related Art

As used herein, the following terms have the meanings indicated:

#### ANILOX ROLLER

A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In flexo presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remoistenable glue units and to create "scratch-and-sniff" perfume ads.

#### ANILOX SYSTEM

The inking method commonly employed on flexographic presses. An elastomer-covered fountain roller supplies a controlled ink film from the ink pan to the engraved metering roller. After ink floods the metering roller, the fountain roller is squeezed or wiped usually with a doctor blade to remove the excess ink. The ink that remains on the metering roller is then transferred to the rubber printing plate.

#### COATER

A device with a pan to contain the coating material, a pan roller partially immersed in the coating material contained in the pan, and a coater roller to meter off a uniform film of the coating material and apply it to the printing plate.

#### COATING

An unbroken, clear film applied to a substrate in layers to protect and seal it, or to make it glossy.

#### FLEXOGRAPHIC INK

A quick-drying, fluid ink that is highly volatile or an ink that can be water based and nonvolatile.

#### FLEXOGRAPHY

A method of rotary letterpress printing characterized by the use of flexible, rubber, or plastic plates with raised image areas and fluid, rapid-drying inks.

#### HALFTONES

Dot-pattern images that have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion; small halftone dots, when viewed at the normal reading distance, cannot be resolved as individual dots but blend into a continuous tone.

#### LITHOGRAPHIC PLATES

A lithographic plate is precoated with a light-sensitive or otherwise imageable coating, and the separation between the image and nonimage areas is maintained chemically. The image areas must be ink receptive and refuse water and the nonimage areas must be water receptive and refuse ink. The wider the difference maintained between the ink receptivity of the image areas and the water receptivity of the nonimage areas, the better the plate will be, the easier it will run on the press, and, consequently, the better the printing. There are several types of lithographic plates. The plate is an image carrier that is said to be planographic, or flat and smooth.

#### LITHOGRAPHY

A printing process in which the image carrier or plate is chemically treated so that the image areas are receptive to ink.

#### 5 OFFSET PRINTING

An indirect printing method in which the inked image on a press plate is first transferred to a rubber blanket, that in turn "offsets" the inked impression to a press sheet. In offset lithography, the printing plate has been photochemically treated to produce image areas receptive to ink.

#### SLURRY

A water suspension of fibers or the suspension of pigment and adhesive used to coat papers. It may also include a suspended metallic material such as uniform-sized metal particles or nonuniform-sized metal particles.

#### ULTRAVIOLET INKS

Printing inks containing an activator that causes the polymerization of binders and solvents after exposure to a source of ultraviolet radiation.

20 Offset lithography is a process that is well known in the art and utilizes the planographic method. This means that the image and nonprinting areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. There are two basic differences between offset lithography and other processes. First, it is based on the principle that grease and water do not mix. Second, the ink is offset from the first plate to a rubber blanket and then from the blanket to a substrate on which printing is to occur such as paper.

30 When the printing plate is made, the printing image is made grease receptive and water repellant and the nonprinting areas are made water receptive and ink repellant. The plate is mounted on the plate cylinder of the press which, as it rotates, comes in contact successively with rollers wet by a water or dampening solution and rollers wet by ink. The dampening solution wets the nonprinting areas of the plate and prevents the ink from wetting these areas. The ink wets the image areas which are transferred to the intermediate blanket cylinder. The inked image is transferred to the substrate as it passes between the blanket cylinder and the impression cylinder. Transferring the image from the plate to a rubber blanket before transfer to the substrate is called the offset principle.

One major advantage of the offset principle is that the soft rubber surface of the blanket creates a clearer impression on a wide variety of paper surfaces and other substrate materials with both rough and smooth textures with a minimum of press preparation.

50 Offset lithography has equipment for short, medium and long runs. Both sheetfed and web presses are used. Sheetfed lithography is used for printing advertising, books, catalogs, greeting cards, posters, labels, packaging, folding boxes, decalcomanias, coupons, trading stamps, and art reproductions. Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press. Web offset is used for printing business forms, newspapers, preprinted newspaper inserts, advertising literature, catalogs, long-run books, encyclopedias, and magazines.

60 In offset lithography, the rubber blanket surface conforms to irregular printing surfaces, resulting in the need for less pressure and preparation. It has improved print quality of text and halftones on rough surfaced papers. Further, the substrate does not contact the printing plate thereby increasing plate life and reducing abrasive wear. Also, the image on the plate is right for reading rather than reverse reading. Finally, less ink is required for equal coverage, drying is speeded, and smudging and setoff are reduced. Setoff is a



condition that results when wet ink on the surface of the press sheets transfers or sticks to the backs of other sheets in the delivery pile.

Thus, in summary, conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roller or a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with an aqueous damping solution which adheres only to the background areas and inked with oleo-resinous inks which adhere only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a contacting blanket cylinder and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as paper, with an impression cylinder and the ink air dries by oxidation and curing after passing through a drying station.

It is also known to provide the printing machine with a downstream coating station having a blanket roller associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to create raised or relief surface areas which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in form of pattern coatings. See U.S. Pat. No. 4,796,556.

Lithographic inks are formulated to print from planographic surfaces which use the principle that grease and water do not mix. Lithographic inks are generally very strong in color value to compensate for the lesser amount applied. They are among the strongest of all inks. The average amount of ink transferred to the paper is about half that of letter press because of the double split of the ink film between the plate cylinder and the blanket cylinder and the blanket cylinder and the substrate on the impression cylinder.

Problems occur in the offset lithographic process when attempting to print certain colors such as white and in particular white on other colors such as yellow because the color white will be faint and not sufficiently strong. In such cases, the sheet or paper or substrate requiring the white ink usually has to be run through the same printer several times before the white becomes sufficiently strong.

Further, such colors are not generally printable in an offset lithographic printing process. This means that the sheets or substrate must be removed and transferred to a second type of machine using the flexographic process to apply greater amounts of ink in successive printing runs to achieve the desired print quality.

A like situation occurs with the printing of slurry-type materials such as "scratch-and-sniff" materials which is a liquid vehicle with a slurry containing an encapsulated essence. Such liquid vehicles, because of the nature of the slurry, must be printed with a flexographic process because the anilox roller can supply greater amounts of ink to the flexo plate on the plate cylinder.

Again, when a liquid vehicle with a slurry having suspended material therein such as metallic particles is to be printed, an offset lithographic process cannot be used without the mixing of the aqueous solution with metallic inks which cause a dulling of the image. Further, the above-mentioned double split of the ink film adds to the dulling of the image. Therefore, to achieve desired results, the printing must take place with a flexographic printing machine.

Thus, liquid opaque coatings or inks such as white colored ink, scratch-and-sniff vehicles, and slurries with metal particles do not achieve desired results when printed in an offset lithographic process and must be transferred from the offset lithographic in-line machines to a separate machine for printing in a separate run.

Such requirements not only hinder the speed of the printing process but also require additional time and thus increase the cost of the printing.

It would be advantageous to have a continuous in-line process in which not only offset lithographic printing could take place but in which, in the same in-line process, liquid printing vehicles including opaque coatings, such as white ink, and slurries containing encapsulated essences or metallic particles could also be printed and dried not only before the printing of the offset lithographic inks but also in which, after the liquid opaque coatings have been applied, an overcoating could be applied to the printed liquid vehicle image using the lithographic process in the continuous in-line process.

#### SUMMARY OF THE INVENTION

The present invention provides for a continuous in-line printing process having a plurality of successive printing stations for printing color images on a substrate. At least one of the stations prints a liquid vehicle image on a substrate with an opaque coating using the flexographic process and at least one of the successive printing stations printing a second color image over the liquid vehicle image on the printed substrate using the lithographic process in the continuous in-line process.

In the novel inventive system, a single in-line continuous printing process is used. One of the stations may print a liquid vehicle image on a substrate that contains a slurry with an encapsulated essence therein utilizing the flexographic process. Another one of the stations may apply an overcoating over the liquid vehicle image on the printed substrate using a lithographic process. Still another of the stations may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating and thereafter at least one of the successive printing stations prints a color image over the aqueous-based vehicle image using the lithographic offset process in the continuous in-line process.

Whenever a station is used for flexographic printing, a flexographic plate image is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the impression cylinder for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In addition, in such case, a high-velocity air dryer is associated with the impression cylinder of one or more of the printing stations where the printing on the substrate is occurring to assist in drying the ink or liquid vehicle printed on the substrate while it is on or near the impression cylinder, before the substrate arrives at the next successive station for additional printing, or before printing occurs at the next successive station.

Thus, if a liquid vehicle such as white ink is to be printed, it is printed with a flexographic process which deposits a greater amount of ink on the substrate, the ink is dried with a high-velocity air dryer while the substrate is on or near the impression cylinder and prior to the substrate being received by the next successive station. If desired, at the next successive station the printing of the white liquid vehicle may again take place thus ensuring the desired intensity of

whiteness on the substrate. Subsequently, at the next succeeding station a printing may take place on top of the white printing and such printing may continue at the remaining successive stations.

Thus, it is an object of the present invention to provide a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and in which some of the stations print using the flexographic process and other of the stations print utilizing the offset lithographic process.

It is also an object of the present invention to print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process at one printing station and at least one successive printing station printing a color image over the aqueous-based vehicle image using a lithographic process in a continuous in-line process or placing an overcoating over the aqueous-based vehicle image using the flexographic process and then printing at successive stations using the lithographic process.

It is yet another object of the present invention to provide a continuous in-line printing process in which one of the stations prints a liquid vehicle image on the substrate with a slurry containing an encapsulated essence using the flexographic process and at least one of the successive printing stations applies an overcoating over the liquid vehicle image on the printed substrate using the offset lithographic process in a continuous in-line process.

#### BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be more fully disclosed when taken in conjunction with the following DETAILED DESCRIPTION OF THE PRESENT INVENTION in which like numerals represent like elements and in which:

FIG. 1 is a schematic view of a prior art offset lithography printing station;

FIG. 2 is a generalized depiction of a printing station that may be used either as an offset lithographic station or a flexographic printing station and illustrates how the station may be converted from an offset lithographic station to a flexographic station; and

FIG. 3 illustrates the continuous in-line process of the present invention comprising a plurality of printing stations, each of which can be converted from an offset lithographic printing station to a flexographic printing station as well as a final coating station.

#### DETAILED DESCRIPTION OF THE PRESENT INVENTION

FIG. 1 is a schematic representation of a well-known offset lithography printing station 10 having a plate cylinder 12, a blanket cylinder 14, and an impression cylinder 16. The printing medium or substrate, such as paper 20 either in sheet form or web, is fed over the impression cylinder 16 in printing contact with the blanket cylinder 14 to receive the image and then passes over the paper transfer cylinder 18 with the image printed thereon. An inking system 26, well known in the art, transfers the ink from the ink supply to the plate cylinder 12. This is a typical offset lithography printing station.

As disclosed in U.S. Pat. No. 4,796,556, offset lithographic printing machines generally have a plurality of in-line liquid application stations at least one of which is an ink image printing station for printing lithographic ink images on to suitable receptive copy sheets. The final

downstream liquid application station is a coating application station for printing a protective and/or aesthetic coating over selected portions of or over the entire ink-image printed surface of the copy sheets and can also be used to print metallic coatings or slurry. As stated in U.S. Pat. No. 4,796,556, two liquid application stations are shown, the latter including a coating apparatus and the first station being a conventional offset image printing station. The coating application printing station is one that can be modified to convert it either permanently or intermittently to a coating station from an offset lithographic station.

Such a station is illustrated in FIG. 2 herein. The station 30 comprises a housing 32 which includes therein a plate cylinder 34 that is fed with an ink system of rollers 36 that take ink from an ink supply 38 and transfer it to the plate cylinder 34. A blanket cylinder 40 is in ink transfer relationship with the plate cylinder 34 and the impression cylinder 42 where the image is transferred to a substrate passing between blanket cylinder 40 and impression cylinder 42 as blanket cylinder 40 rotates in the direction of arrow 52. This is a conventional offset lithographic printing station. When it is desired to convert that station into a coater station, the coater apparatus 43 has a coater head 44 including a supply of liquid coating and an anilox roller 46 that can be moved such that it can be in contact with either the blanket cylinder 40 for direct printing or the plate cylinder 34 for offset printing. In this case, the ink rollers 36 for the lithographic system are removed from engagement with the plate cylinder 34 in a well-known manner. The coater unit 43 includes a motor device 45, an arm 47, and a pivotal connection 48 that connects the coater head 44 with the remainder of the assembly.

As stated previously, the offset lithographic machine of FIG. 2 is converted as shown therein to a coater that is used only in the last stage of an in-line printing process. It has not been able to be used in stages other than the last printing station because the ink that is placed on the blanket cylinder by means of an anilox roller is still wet when it arrives at the subsequent stations, thus causing smearing of the printed material and causing a general impossibility of printing other information thereon. However, applicant has modified the station shown in FIG. 2 by the addition of a high-velocity air dryer 50 that is associated with the impression cylinder 42 directly after the ink is transferred from the blanket cylinder to the substrate on the impression cylinder. Thus by using flexographic inks, or aqueous coatings which are naturally quick-drying inks, and the high-velocity air dryer 50 located at the point where the ink is applied to the substrate on the impression cylinder, the ink is sufficiently dried when it passes to the next station that further printing can take place on the printed substrate.

Thus, as shown in FIG. 3, a conventional in-line offset lithographic printing machine 52 is shown having an apparatus to feed paper into the said machine, referred to as a feeder 54, printing stations 56, 58, 60, 62, and 64 and a coating station 66. A delivery station 68 receives the printed material or substrates. Thus there are a plurality of successive printing stations 56, 58, 60, 62, and 64 for printing color images on the substrate in a continuous in-line process. Any one of the printing stations 56-64 can be modified as generally shown therein and as illustrated in FIG. 2 to print a first color image using the flexographic process. The succeeding printing stations can then print a second color image over the first color image using the lithographic process in the continuous in-line process. As illustrated in FIG. 2, the flexographic process printing station includes the blanket cylinder 40 and the impression cylinder 42. A

flexographic plate 41 on the blanket cylinder 40 has an image thereon for receiving the first color from the anilox roller 46 and transferring that first color image to the impression cylinder 42 for printing on the substrate. The high-velocity air dryer 50 thus dries the flexographic ink on the substrate and passes the substrate to the subsequent printing station. Thus in FIG. 3, station 56 may be modified as generally shown therein and as illustrated in FIG. 2 and a flexographic ink can be printed thereon at station 56, dried by the high-velocity air dryer 50, and coupled to subsequent in-line stations 58-64 for further printing a second or more color images over the first color image using the offset lithographic process in a continuous in-line process. The flexographic printing station shown in FIG. 2 may print a liquid vehicle image on the substrate with a slurry containing an encapsulated essence. At least one of the successive printing stations 58-64 an overcoating may be applied over the liquid vehicle image on the printed substrate using the flexographic process in the continuous in-line process. The overcoating may be an aqueous overcoating, or an ultraviolet overcoating. In addition, the substrate may be a sheet or a web 20 as illustrated in FIG. 1 or it may be single sheet fed in the continuous in-line process from the stack sheets shown at 54 in FIG. 3.

Further, the modified flexographic printing station 30 shown in FIG. 2, as stated previously, may be any one of the stations 56-64 in FIG. 3, and as illustrated by stations 56 and 58, and may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating. Again, after it is dried by the high-velocity air dryer 50, it may be passed to one of the successive printing stations for printing a color image over the aqueous-based vehicle image using the offset lithographic process in the continuous in-line process. The suspended material may include uniform-sized metal particles to form the metallic coating or it may include nonuniform or multiple-sized metal particles to form the metallic coating.

The present invention is especially useful when a liquid opaque coating must be printed such as a white color ink. In that case, it may be desirable to have both stations 56 and 58 modified as shown in FIG. 3 and as illustrated in detail in FIG. 2. In such case, the anilox roller 46 at each station delivers the white ink in the same pattern to the flexographic plate 41 on the blanket cylinder 40 for transfer to the substrate on the impression cylinder 42. As the substrate passes the high-velocity drying station 50, the ink is dried and the second station may again print the same white pattern on the substrate to increase the quality of the white ink appearance after it is applied to the substrate.

Thus, the station or stations that are converted to flexographic printing stations may have an ink-providing means 46 at the printing station for applying a flexographic ink to the blanket cylinder to form the image. A substrate receives the flexographic ink image transfer from the blanket cylinder and at least one subsequent printing station in the in-line process receives the image-printed substrate and prints an additional coated ink image on the substrate on top of the flexographic ink image using offset lithography. The additional colored ink images that can be printed on top of the flexographic ink images can be conventional lithographic inks or waterless inks.

Further, the colored ink images may be printed with halftone screening processes. The flexographic ink image and the colored ink images may also be printed in solids and/or halftone printing plates in sequence and in registry in successive printing stations to produce a multicolored image on the substrate. Further, the printing apparatus may include a sheetfed press or a web press.

In the present invention, at least one of the flexographic printing stations prints an image with liquid vehicle slurry containing an encapsulated essence. In another embodiment, at least one of the printing stations prints an image with a water-based liquid vehicle containing suspended particles that are either uniform or nonuniform in size. The suspended particles may be metallic particles up to substantially 16 microns in diameter.

The present invention may also use the metallic color printing process as disclosed in commonly assigned U.S. Pat. No. 5,370,976 incorporated herein by reference in its entirety.

In one aspect, the novelty of the present invention is to create a flexographic printing station that can be used at one of a plurality of printing stations in a continuous in-line process and in which, at a subsequent printing station, a lithographic process may be used to print over the liquid vehicle printed by the flexographic station.

Thus, there has been disclosed an apparatus for a combined lithographic/flexographic printing process that includes a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and wherein one of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using the lithographic process in the continuous in-line process.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but, on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

We claim:

1. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;

at least one of said successive printing stations being a lithographic printing station; and

an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.

3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.

4. Apparatus as in claim 1 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

5. Apparatus as in claim 1 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;  
 a suspended metallic material being included in said aqueous-based vehicle image; and  
 at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;  
 a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and  
 an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:  
 a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;  
 one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and  
 at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:  
 said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;  
 a flexographic plate on said plate cylinder;  
 an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and  
 said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:  
 a substrate;  
 a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;  
 at least two successive ones of said printing stations being flexography stations and comprising:  
 (1) a supply of liquid coating;  
 (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;  
 (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and  
 at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:  
 a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;  
 a blanket cylinder at at least a first one of said flexographic printing stations;  
 flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;  
 a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and  
 at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:  
 a plate cylinder at said at least first one of said flexographic stations;  
 a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and  
 said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:  
 a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;  
 at least one of said flexographic printing stations having:  
 (1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;  
 (2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

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(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images on top of said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

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34. A method as in claim 29 further including the steps of: printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating over said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

\* \* \* \* \*

Tom Sawyer



US005537925A

## United States Patent [19]

Secor et al.

[11] Patent Number: 5,537,925

[45] Date of Patent: Jul. 23, 1996

[54] **INFRA-RED FORCED AIR DRYER AND EXTRACTOR**[75] Inventors: **Howard C. Secor, Coppell; Ronald M. Rendleman, Dallas; Paul D. Copenhaver, Colleyville, all of Tex.**[73] Assignee: **Howard W. DeMoore, Dallas, Tex.**

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[51] Int. Cl.<sup>5</sup> B41F 35/00

[52] U.S. Cl. 101/424.1; 101/488; 34/273; 34/274; 34/420; 34/421

[58] Field of Search 34/418, 419, 267, 34/273, 274, 420, 421, 101/424.1, 424.2, 487, 488; 219/388, 216

4,783,908	11/1988	Pabst	34/273
4,798,007	1/1989	Eichenlaub	34/4
4,809,608	3/1989	Wolnick et al.	101/416.1
4,811,493	3/1989	Burgio, Jr.	34/4
4,876,437	10/1989	Kondo	219/388
4,882,852	11/1989	Kautto	34/273
4,882,992	11/1989	Schmoeger	101/424.1
4,989,343	2/1991	Ericsson	34/420
5,010,659	4/1991	Treleven	34/41
5,060,572	10/1991	Waizmann	101/424.1
5,092,059	3/1992	Winberger et al.	34/156
5,099,586	3/1992	Anderson	34/68
5,142,795	9/1992	Abbott	34/41
5,263,265	11/1993	Melgaard	34/421
5,296,680	3/1994	Yamada	219/388
5,317,127	5/1994	Brewster et al.	34/273

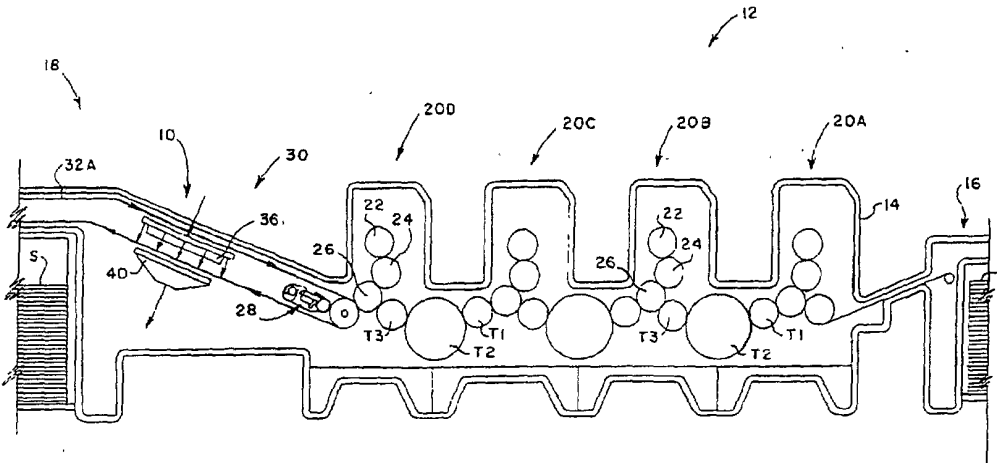
Primary Examiner—Edgar S. Burr  
Assistant Examiner—Anthony H. Nguyen  
Attorney, Agent, or Firm—Dennis T. Gnggs

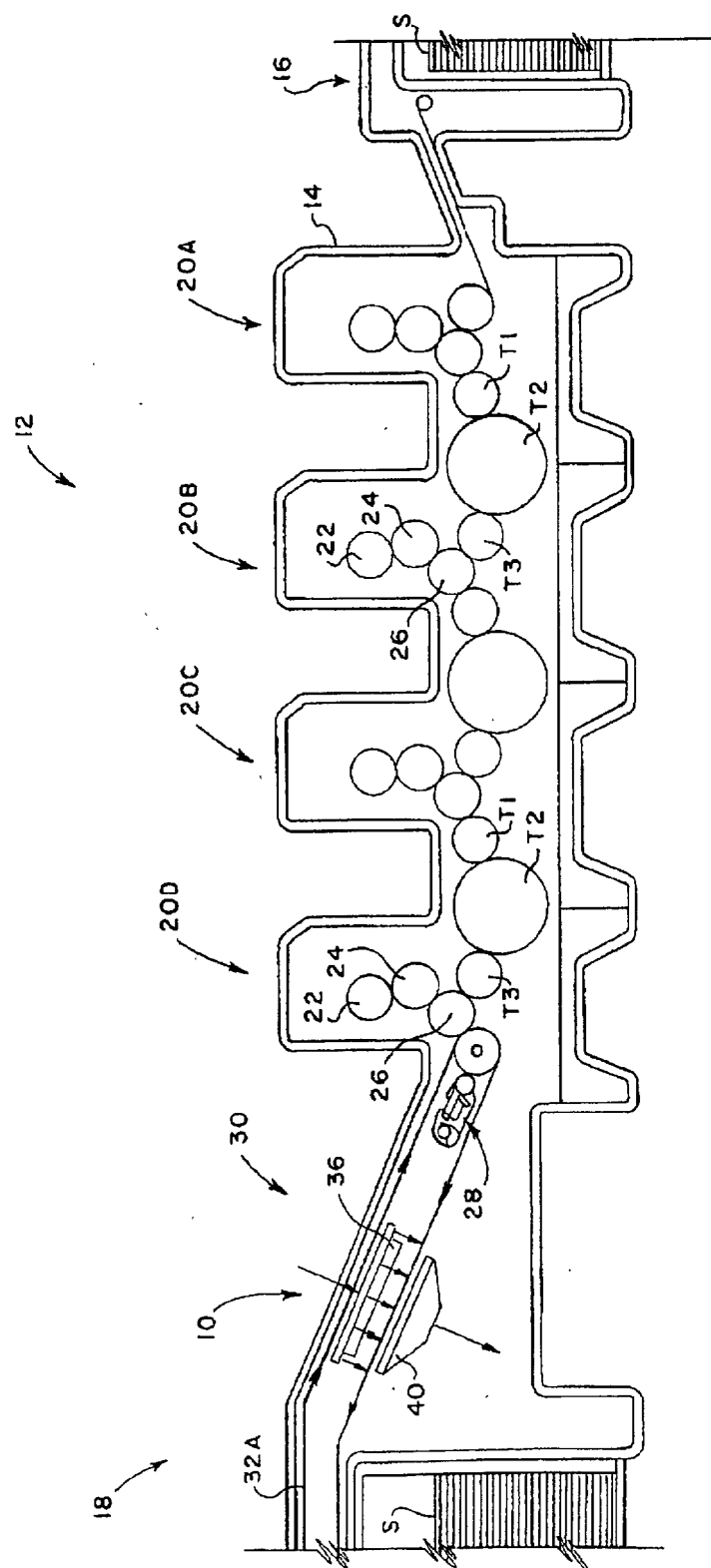
[57] **ABSTRACT**

An infra-red dryer utilizes high velocity air jets which scrub and break up the moist air layer which clings to the surface of a freshly printed and/or coated sheet. The high velocity air jets are directed through multiple air flow apertures across an array of infra-red lamps onto the freshly printed and/or coated sheets. An extractor exhausts the moisture-laden air from an exposure zone while short wave infra-red radiation heats the ink and/or protective coating. The effective exposure to pressurized air is increased by the air jets which produce a balanced pressure air blanket along the sheet travel path. The moist air layer is displaced from the printed and/or coated sheet and is extracted from the press as the sheet moves through the exposure zone.

15 Claims, 5 Drawing Sheets

References Cited				
U.S. PATENT DOCUMENTS				
3,900,959	8/1975	Breschi et al.	34/155	
4,257,172	3/1981	Townsend	34/68	
4,434,562	3/1984	Bubley et al.	34/4	
4,449,453	5/1984	Staffer et al.	101/416	
4,501,072	2/1985	Jacobi, Jr.	34/1	
4,513,516	4/1985	Bjornberg	34/41	
4,545,131	10/1985	Ericsson	34/4	
4,594,266	6/1986	Lemaire et al.	34/273	
4,596,935	6/1986	Lumpp	250/495.1	
4,693,013	9/1987	Pabst et al.	34/4	
4,698,767	10/1987	Wensel et al.	364/471	
4,716,658	1/1988	Jacobi, Jr.	34/4	
4,727,655	3/1988	Jacobi, Jr.	34/4	
4,773,167	9/1988	Jacobi, Jr.	34/4	





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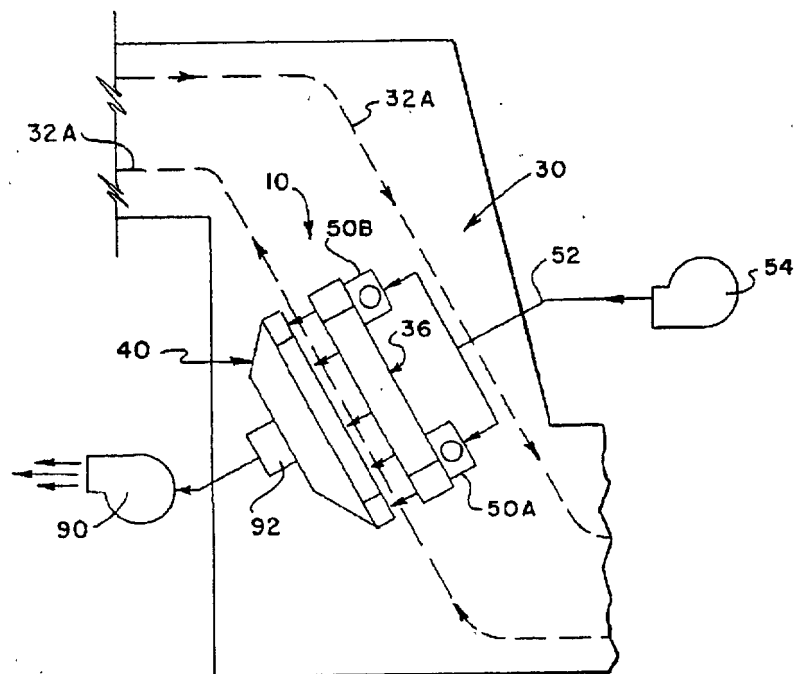


FIG. 2

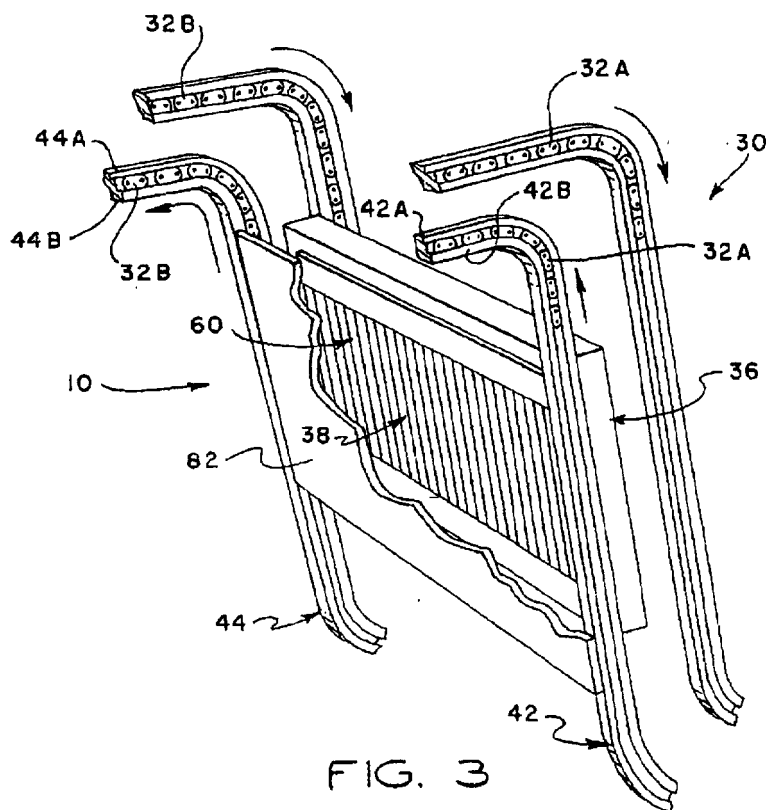


FIG. 3

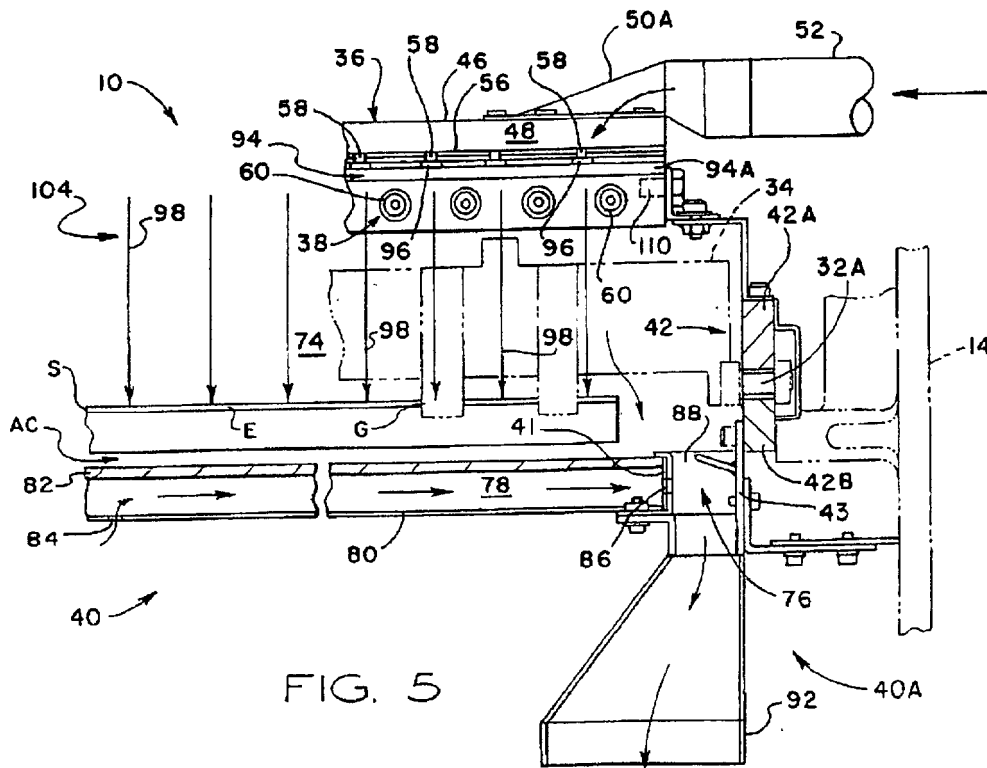
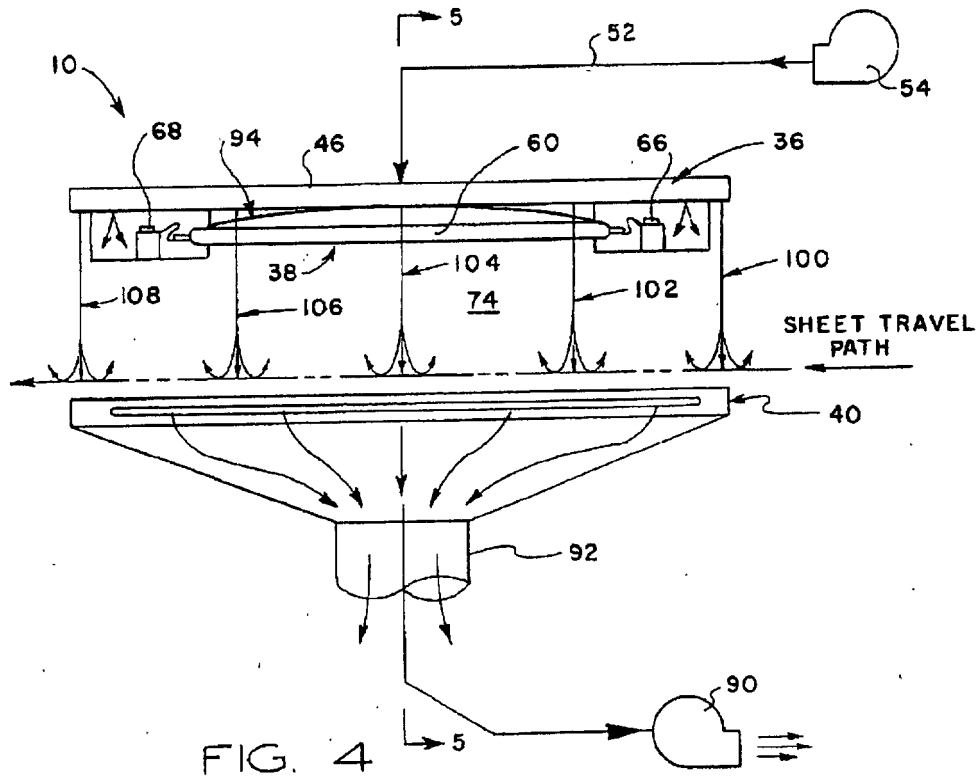
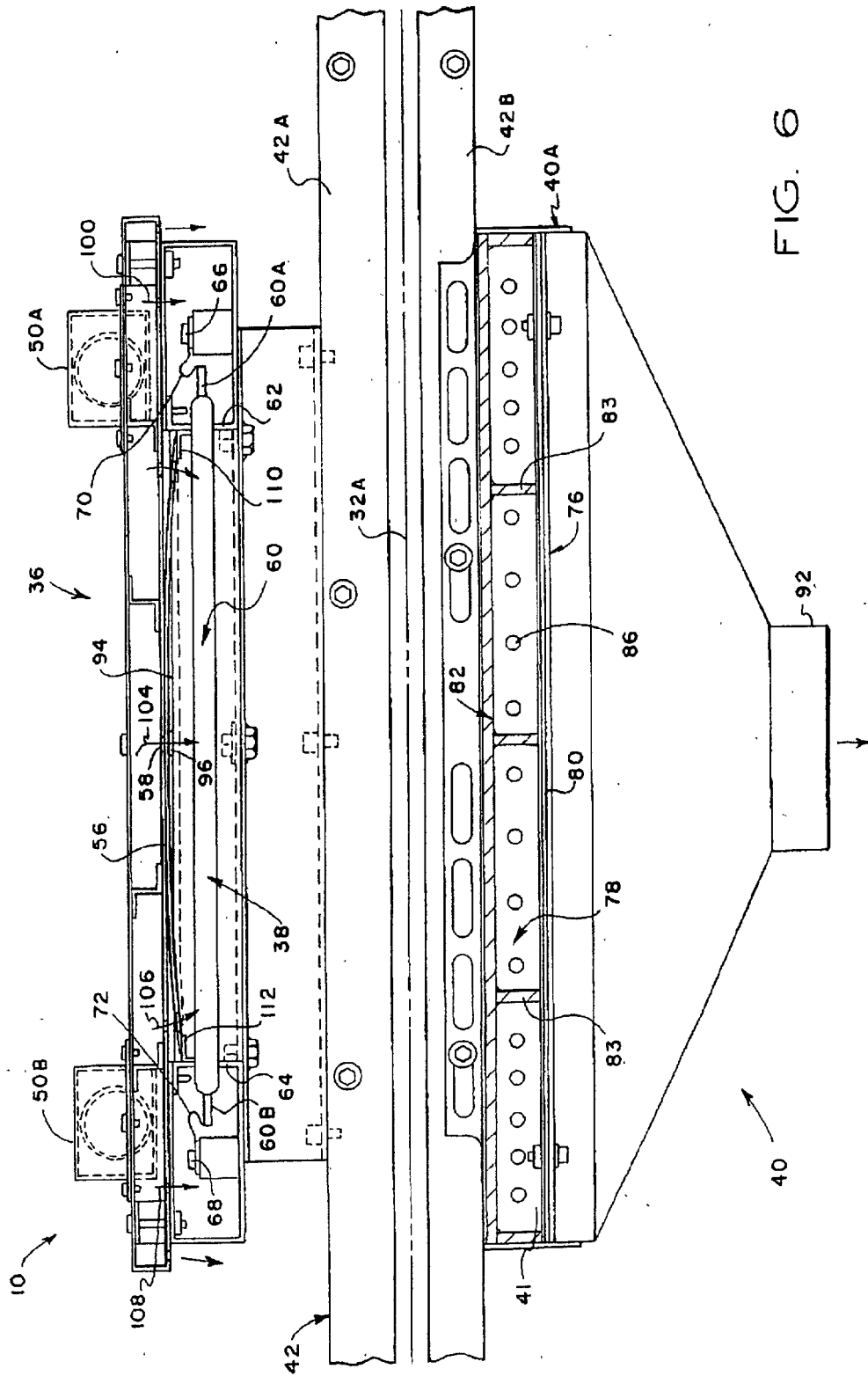


FIG. 6



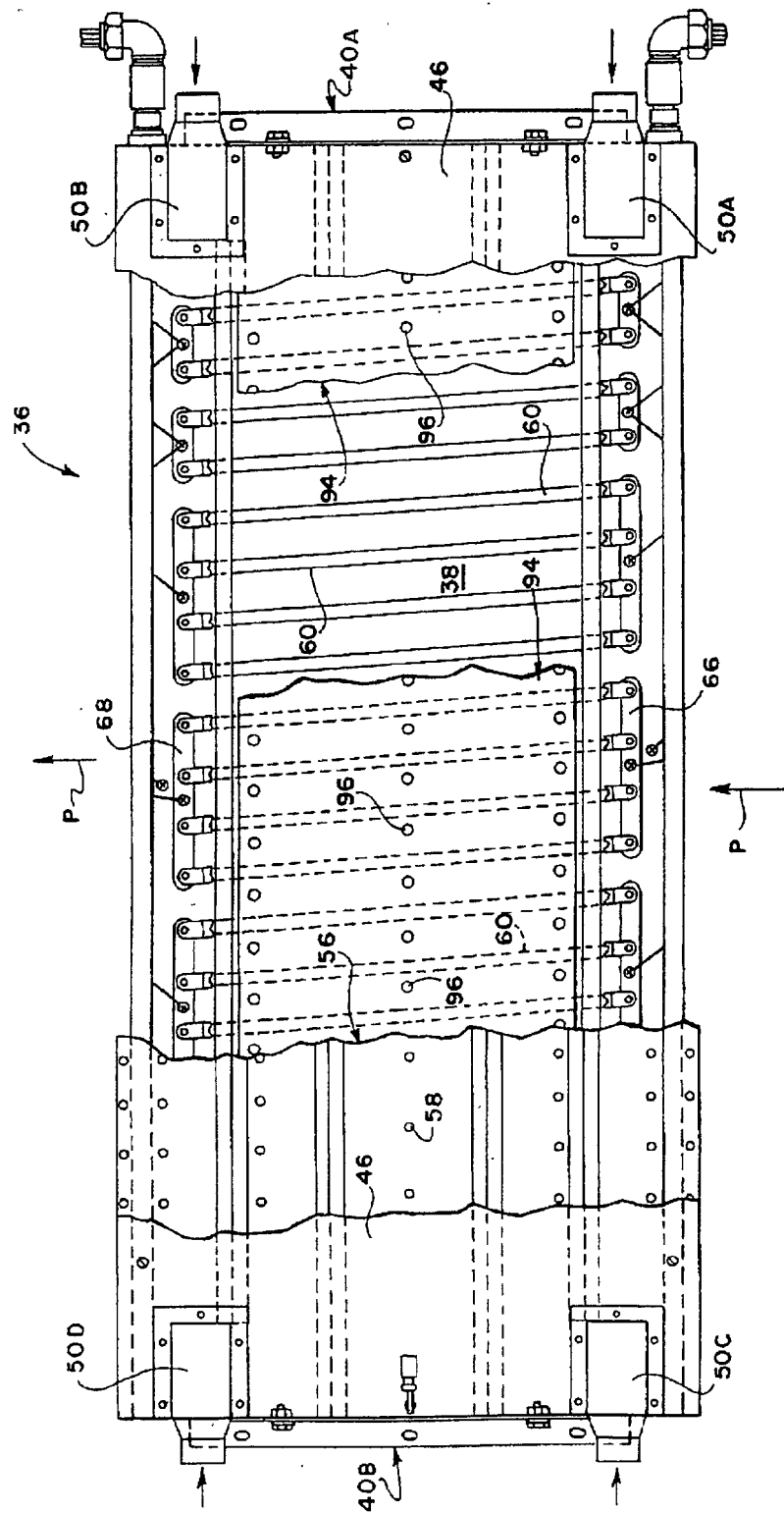


FIG. 7

1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204		2204-2205		2205-2206		2206-2207		2207-2208		2208-2209		2209-2210		2210-2211		2211-2212		2212-2213		2213-2214		2214-2215		2215-2216		2216-2217		2217-2218		2218-2219		2219-2220		2220-2221		2221-2222		2222-2223		2223-2224	
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## INFRA-RED FORCED AIR DRYER AND EXTRACTOR

### FIELD OF THE INVENTION

This invention is related generally to accessories for sheet-fed, rotary offset printing presses, and in particular to a dryer for printed materials which utilizes infra-red radiant heat, forced air flow and extraction.

### BACKGROUND OF THE INVENTION

In the operation of a rotary offset press, an image is reproduced on a sheet of paper or some other print stock by a

plate cylinder which carries the image, a blanket cylinder which has an ink transfer surface for receiving the inked image, and an impression cylinder which presses the paper against the blanket cylinder so that the inked image is transferred to the paper. In some applications, a protective and/or decorative coating is applied to the surface of the freshly printed sheets.

The freshly printed sheets are then conveyed to a sheet delivery stacker in which the finally printed sheets are collected and stacked.

The wet ink and coatings should be dried before the sheets are stacked or run back through the press for a second pass, to prevent smearing defects and to prevent offsetting of the ink on the unprinted side of the sheets as they are stacked. Spray powder has been applied between the freshly printed sheets which are to be stacked to improve sheet handling and to separate one delivered sheet from the next sheet to prevent offsetting while the ink and/or coating dries. One limitation on the use of spray powder is that fugitive particles of the spray powder disperse into the press room and collect on press equipment, causing electrical and mechanical breakdowns and imposing a potential health hazard for press room personnel.

### DESCRIPTION OF THE PRIOR ART

Hot air convection heaters and radiant heaters have been employed to reduce the volume of spray powder applied, except for the small amount needed for sheet handling purposes. Hot air convection heaters are best suited for slow to moderate speed press runs in which the exposure time of each printed sheet to the hot air convection flow is long enough that aqueous base inks and coatings are set before the sheets reach the stacker.

For high-speed press operation, for example, at 5,000 sheets per hour or more, the exposure time of each printed sheet as it passes through the dryer station is not sufficient to obtain good drying by convection flow alone. Radiant heaters such as infra-red heat lamps provide greater drying efficiency because the short wave length infra-red energy is preferentially absorbed in the liquid inks and coatings to provide rapid evaporation. The infra-red radiant energy releases water and volatiles from the ink and/or coating. Consequently, a humid air layer clings to the printed surface of the sheet as it moves through the dryer, and will be trapped between adjacent sheets in the stack unless it is removed.

As press speed is increased, the exposure time (the length of time that printed sheet is exposed to the radiant heat) is reduced. Consequently, the output power of the radiant lamp dryers has been increased to deliver more radiant energy to

the printed sheets in an effort to compensate for the reduction in exposure time.

The higher operating temperatures of the high-powered lamps cause significant heat transfer to the associated printing unit, coater and press frame equipment, accelerated wear of bearings and alterations in the viscosities of the ink and coating, as well as upsetting the water balance of aqueous coatings. The heat build-up may also cause operator discomfort and injury.

### OBJECT OF THE INVENTION

The principal object of the present invention is to increase the operating efficiency of a printing press dryer of the type which utilizes radiant lamps to dry inks and coatings on freshly printed and/or coated sheets.

A related object of the present invention is to provide a high efficiency, high power output radiant heater which includes improved means for limiting the transfer of heat to nearby parts and press equipment.

Another object of the present invention is to increase the effective exposure time of a freshly printed sheet to forced air flow in a printing press dryer so that the printing press may be operated at higher speeds without compromising quality.

Yet another object of the present invention is to provide an improved radiant heat dryer of the character described which includes means for removing the humid air layer from the surface of a freshly printed sheet and extracting it from the press, thereby accelerating the drying process.

### SUMMARY OF THE INVENTION

The foregoing objects are achieved according to the present invention by a combination forced air and radiant heat dryer in which the exposure to forced air flow is increased by broadening the air base. Forced air at high pressure is discharged uniformly through precision holes located directly above an array of infra-red lamps onto a freshly printed and/or coated sheet as it moves along a sheet transport path to a delivery stack.

According to one aspect of the present invention, the moist air layer is displaced from the surface of the printed sheet by high-velocity air jets which scrub and break-up the moisture-laden air layer that adheres to the printed surface of the sheet. The high-velocity air jets create turbulence which overcomes the surface tension of the moisture and separates the moisture laden air from the surface of the paper. The moisture laden air becomes entrained in the forced air flow and is removed from the press as the moisture laden air is extracted.

Effective exposure to the forced air flow is increased by multiple air jets, in which the air jets are arranged to deliver a substantially uniform blanket of the high velocity air across the sheet transport path. Preferably, the high velocity air jets are uniformly spaced with respect to each other along the sheet delivery path. Since the release of moisture and other volatiles from the ink and/or coating occurs continuously during exposure in response to the absorption of infra-red radiation, the moisture laden air layer is displaced continuously from the printed sheet as the printed sheet travels through the dryer and crosses the multiple air jets.

After a printed sheet exits the dryer, and before the arrival of the next successive printed sheet, residual moisture-laden air is completely exhausted from the press by an extractor. According to this arrangement, the drying of each printed

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sheet is accelerated before it is placed on the delivery stack. If a protective coating is applied over the ink, the coating is completely dried and a dry film is established over the wet ink. This permits the ink to thoroughly cure under the coating after stacking, thus eliminating the need for spray powder to control offsetting.

Operational features and advantages of the present invention will be understood by those skilled in the art upon reading the detailed description which follows with reference to the attached drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic side elevational view in which the dryer of the present invention is installed in a four color offset rotary printing press;

FIG. 2 is a simplified side elevational view showing the installation of the dryer of the present invention in the delivery conveyor section of FIG. 1;

FIG. 3 is a perspective view, partially broken away, showing installation of the dryer assembly of FIG. 2 on the gripper chain guide rails;

FIG. 4 is a simplified schematic diagram showing the principal dryer components of the present invention;

FIG. 5 is a sectional view of the improved dryer of the present invention taken along the line 5—5 of FIG. 4;

FIG. 6 is an elevational view, partially in section, of the dryer assembly shown in FIG. 2; and,

FIG. 7 is a top plan view, partially in section, of the dryer assembly shown in FIG. 2.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As used herein, the term "processed" refers to various printing processes which may be applied to either side of a sheet or web, including the application of inks and/or coatings. The term "substrate" refers to sheets or web stock.

Referring now to FIG. 1, the dryer 10 of the present invention will be described as used for drying freshly printed substrates, either sheets or web stock, which have a protective and/or decorative coating which has been applied in a sheet-fed or web-fed, rotary offset or flexographic printing press. In this instance, the dryer 10 of the present invention is mounted on the guide rails of the delivery conveyor of a four color printing press 12 which is capable of handling individual printed sheets having a width of the approximately 40" (102 millimeters) and capable of printing 10,000 sheets per hour or more, such as that manufactured by Heidelberg Druckmaschinen AG of Germany under its designation Heidelberg Speedmaster 102 V.

The press 12 includes a press frame 14 coupled on the right end to a sheet feeder 16 from which sheets, herein designated S, are individually and sequentially fed into the press, and at the opposite end, with a sheet delivery stacker 18 in which the finally printed sheets are collected and stacked. Interposed between the sheet feeder and the sheet delivery stacker 18 are four substantially identical sheet printing units 20A, 20B, 20C and 20D which can print different color inks onto the sheets as they are moved through the press.

As illustrated in FIG. 1, each sheet fed printing unit is of conventional design, each unit including a plate cylinder 22, a blanket cylinder 24 and an impression cylinder 26. Freshly printed sheets from the impression cylinder 26 are transferred to the next printing unit by transfer cylinders T1, T2,

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T3. A protective coating is applied to the printed sheets by a coating unit 28 which is positioned adjacent to the last printing unit 20. The coating unit 28 is preferably constructed as disclosed in my U.S. Pat. No. 5,176,077, which is incorporated herein by reference.

The freshly printed and coated sheets S are transported to the delivery stacker 18 by a delivery conveyor system, generally designated 30. Referring now to FIG. 1, FIG. 3 and FIG. 5, the delivery conveyor 30 is of conventional design and includes a pair of endless delivery gripper chains 32A, 32B shown carrying laterally disposed gripper bars 34 (FIG. 5) having a gripper element G for gripping the leading edge E of a freshly printed sheet S as it leaves the impression cylinder 26. As the leading edge E of the printed sheet S is gripped by the gripper G, the delivery chains 32A, 32B pull the gripper bar 34 and sheet S away from the impression cylinder and transports the freshly printed and coated sheet to the sheet delivery stacker 18.

Prior to delivery to the sheet delivery stacker 18, the freshly printed sheets are dried by a combination of infra-red thermal radiation, forced air flow and extraction. Referring now to FIG. 2, FIG. 3, FIG. 4 and FIG. 5, the dryer 10 includes as its principal components a dryer head 36, a radiant heat lamp assembly 38, and an extractor head 40. As shown in FIG. 3 and FIG. 5, the dryer head 36 is mounted on the upper section 42A of a chain guide rail 42, and likewise on the upper chain guide section 44A of a chain guide rail 44. In this position, the dryer head 36 is extended across and spaced from the sheet travel path P (FIG. 4).

The dryer head includes a housing 46 defining an air distribution manifold chamber 48. The air distribution manifold housing includes multiple inlet ports 50A, 50B, 50C and 50D for receiving pressurized air through a supply duct 52 from a blower fan 54. As shown in FIG. 7, the air distribution manifold housing 46 includes a distribution panel 56 which is intersected by multiple discharge ports 58 which are oriented for discharging pressurized jets of air toward the sheet travel path. The discharge ports 58 are uniformly spaced so that a uniform blanket of pressurized air is produced across the processed side of a sheet S as it moves through the dryer.

Referring now to FIG. 6 and FIG. 7, the heat lamp assembly 38 includes an array of heat lamps 60 extending transversely with respect to the sheet travel path P substantially in parallel relation with each other. The radiant heat lamps 60 are supported between the sheet travel path P and the air distribution manifold by end brackets 62, 64. The ends of each heat lamp project through circular apertures formed in the end brackets. Each heat lamp 60 includes electrodes 60A, 60B which are electrically connected to power buses 66, 68 by flexible, conductive straps 70, 72, respectively. According to this arrangement, each heat lamp 60 is free to expand and contract longitudinally in response to thermal cycling.

Each heat lamp 60 is preferably an infra-red radiant lamp having an output in the short wavelength (near) infra-red region (from about 0.70 to about 1.50 micrometers). The power dissipation of each infra-red lamp may be selected from the range of 500 watts—2 kw. In the exemplary embodiment, each lamp is a short wavelength infra-red quartz lamp having an electrical power rating of 1 kw.

Referring now to FIG. 2, FIG. 4, FIG. 5 and FIG. 6, the extractor head 40 is mechanically attached to the lower guide rail section 42B of the chain guide rail 42, and likewise is connected to the lower chain guide rail 44B on the opposite side. The extractor head 40 is positioned facing

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the back side of a freshly processed sheet as it moves along the sheet travel path. According to this arrangement, an exposure zone 74 is bounded between the dryer head 36 and the extractor head 40, and is substantially co-extensive with the length and width of the radiant heat lamp assembly 38.

Referring again to FIG. 5, the extractor head 40 includes housing panels 41, 43 defining an air extractor manifold chamber 76 on laterally opposite sides of the exposure zone. Each manifold chamber 76 has an inlet port 88 coupled in air flow communication with the exposure zone 74. The extractor head 40 also includes an air circulation passage 78 which is enclosed between a lower manifold panel 80 and a support plate 82. The support plate 82 defines the lower boundary of the exposure zone 74, and limits downward deflection of the trailing end of the sheet S. The support plate 82 is reinforced by multiple ribs 83 which extend between the support plate and the manifold panel 80.

The support plate 82 and the ribs 83 serve as a heat sink for conducting thermal energy out of the exposure zone 74, in response to heat exchange with cooling air flowing through the air circulation passage 78. The air circulation passage 78 has an inlet port 84 connecting the air circulation passage in flow communication with a source of cooling air (for example ambient air), and a vent port 86 connecting the air circulation passage 78 in air flow communication with the extractor manifold chamber 76.

As shown in FIG. 4 and FIG. 5, the extractor manifold inlet port 88 is coupled in air flow communication with the exposure zone 74 for extracting heat and moisture laden air out of the dryer. The extractor manifold chamber 76 is coupled in air flow communication with an exhaust blower fan 90 by an air duct 92. The air flow capacity of the exhaust blower fan 90 is preferably about four times the flow capacity provided by the forced air blower fan 54. This will ensure that the exposure zone 74 is maintained at a pressure level less than atmospheric, thereby preventing the escape of hot, moisture laden air into the press room.

Referring now to FIG. 4, FIG. 5, and FIG. 7, a reflector plate 94 is mounted intermediate the air distribution panel 56 and the heat lamp assembly 38. The reflector plate is intersected by multiple air flow apertures 96 which are disposed in air flow communication with the discharge ports 58 which are formed in the distribution panel 56. The air flow apertures 96 are oriented to direct jets 98 of pressurized air through the heat lamp assembly and onto a printed and/or coated (processed) sheet S moving along the sheet travel path.

According to one aspect of the present invention, the multiple air flow apertures are arranged in linear rows 100, 102, 104, 106 and 108 which extend transversely with respect to the direction of sheet travel. The rows are longitudinally spaced with respect to each other along the sheet travel path. Each air jet expands in a conical pattern as it emerges from the air flow aperture 96. Expanding air jets from adjacent rows overlap along the sheet travel path, thereby producing a turbulent air blanket which scrubs the processed side of the sheet S as it moves through the exposure zone. Preferably, balanced air pressure is applied uniformly across the sheet S to ensure that the moist air layer is completely extracted.

Referring again to FIG. 5 and FIG. 7, the air distribution manifold discharge ports are arranged in similar linear rows which are spaced with respect to each other and are aligned with the rows in the reflector plate. In this arrangement, the discharge ports 58 in each row of the distribution manifold are aligned in flow registration with the air flow apertures 96

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in each row of the reflector plate, respectively. Preferably, the air flow apertures 96 in the reflector plate are substantially centered with respect to adjacent heat lamps 60 whereby each pressurized air jet 98 is directed through one of the longitudinal spaces between adjacent lamps (see FIG. 5).

As shown in FIG. 5, the sheet support plate 82 faces the radiant heat lamps across the exposure zone 74 and is disposed substantially in alignment with the sheet travel path P for engaging the back side of a freshly processed sheet S as it is travels through the exposure zone. The leading edge E of the sheet S is gripped by the gripper means G, and the depending body portion of the sheet S rides on a thin air cushion AC along the support plate 82.

Referring again to FIG. 4 and FIG. 6, the reflector plate 94 is pre-stressed to assume the form of a convex arch under ambient temperature conditions, and approaches a flat plate configuration under production operating temperature conditions. According to this arrangement, the reflector plate 94 is prevented from touching the infra-red lamps 60 during production. The reflector plate 94 has side edge portions 94A, 94B which are mounted on first and second shoulder brackets 110, 112, respectively, on opposite sides of the dryer head. The shoulder brackets limit thermally induced deflection movement of the reflector plate 94 toward the heat lamps, while accommodating thermally induced lateral expansion and contraction movement of the reflector side edge portions 94A, 94B, respectively.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A dryer for use in combination with a printing press of the type having conveyor apparatus for transporting a freshly processed substrate along a travel path comprising, in combination:

a dryer head adapted for installation in a position adjacent the travel path and facing a freshly processed substrate as it moves along the travel path, the dryer head including a housing defining an air distribution manifold, the air distribution manifold having an inlet port for receiving pressurized air and having discharge port means;

a heat lamp assembly disposed on the dryer head, the heat lamp assembly including multiple heat lamps supported between the travel path and the air distribution manifold;

a reflector plate disposed intermediate the air distribution manifold housing and the heat lamp assembly, the reflector plate being intersected by multiple air flow apertures disposed in air flow communication with the discharge port means of the air distribution manifold, and the air flow apertures being oriented to direct jets of pressurized air onto a freshly processed substrate moving along the travel path;

an extractor head disposed in a position adjacent the travel path and spaced from the dryer head, thereby defining an exposure zone therebetween, the extractor head including a housing defining an air extractor manifold having inlet port means coupled in airflow communication with the exposure zone for extracting air from the exposure zone and having a discharge port for exhausting the extracted air from the press;

a support plate spaced from the heat lamp assembly across from the exposure zone and disposed adjacent the

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substrate travel path for supporting a freshly processed substrate as it is transported through the exposure zone; and,

a cooling air circulation manifold having a housing panel spaced from the support plate and defining an air circulation passage therebetween, the air circulation manifold having an inlet port for connecting the air circulation passage in communication with a source of cooling air, and having a vent port connecting the air circulation passage in air flow communication with the extractor manifold discharge port.

2. A dryer as defined in claim 1, wherein the multiple air flow apertures are arranged in linear rows extending transversely to the direction of substrate travel, the rows being longitudinally spaced with respect to each other along the travel path, with pressurized jets of air flowing through the air flow apertures in each row in combination producing an air blanket along a portion of the substrate travel path.

3. A dryer as defined in claim 2, wherein the air distribution manifold discharge port means comprise multiple discharge ports oriented for directing pressurized jets of air toward the travel path, the discharge ports being arranged in linear rows which are longitudinally spaced with respect to each other and aligned with the rows in the reflector plate, and the discharge ports of the distribution manifold being aligned in flow registration with the air flow apertures of the reflector plate, respectively.

4. A dryer as defined in claim 1, wherein each air flow aperture in the reflector plate is substantially centered with respect to a pair of adjacent heat lamps whereby each pressurized jet of air is directed through a longitudinal space between an adjacent pair of heat lamps.

5. A dryer as defined in claim 1, said extractor head comprising:

a first extractor manifold having an inlet port coupled in air flow communication with the exposure zone along one side of the travel path; and,

a second extractor manifold having an inlet port coupled in air flow communication with the exposure zone along the laterally opposite side of the travel path.

6. A dryer as defined in claim 1, wherein the reflector plate is pre-stressed to assume the form of a convex arch under ambient temperature conditions.

7. A dryer as defined in claim 6, including:

first and second shoulders attached to opposite sides of the dryer head, the reflector plate having first and second side edge portions engaging the first and second shoulders, respectively, said shoulders limiting thermally induced deflection movement of the first and second portions toward the heat lamp assembly while accommodating thermally induced expansion movement of the reflector plate side edge portions, respectively.

8. A dryer for use in combination with a printing press of the type having conveyor apparatus for transporting a processed substrate along a travel path comprising, in combination:

a dryer head adapted for installation in a position facing the freshly processed side of a substrate as it moves along the travel path, the dryer head having a housing defining an air distribution manifold, the air distribution manifold including an inlet port for receiving pressurized air and having discharge port means for directing pressurized air jets toward the travel path;

a radiant heat lamp assembly disposed within the dryer head, the heat lamp assembly including multiple radiant heat lamps supported between the travel path and the air distribution manifold; and,

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an extractor head adapted for installation in a position facing the back side of a freshly processed substrate as it moves along the substrate travel path, thereby defining an exposure zone therebetween, the extractor head including a first extractor manifold having an inlet port coupled in air flow communication with the exposure zone along one side of the travel path, a second extractor manifold having an inlet port coupled in air flow communication with the exposure zone along the laterally opposite side of the travel path, and extractor port means coupled to the first and second extractor manifolds for extracting moisture laden air.

9. A dryer as defined in claim 8, the extractor head including:

a support plate extending across the exposure zone between the first and second extractor manifolds.

10. A dryer as defined in claim 9, including a cooling air circulation manifold having a housing panel spaced from the support plate and defining an air circulation passage therebetween, the air circulation manifold having an inlet port connecting the air circulation passage in communication with a source of cooling air, and having a discharge port connecting the circulation passage in air flow communication with the extractor manifold discharge port means.

11. A dryer as defined in claim 8, including:

a reflector plate disposed intermediate the air distribution manifold and the heat lamp assembly, the reflector plate being intersected by multiple air flow apertures disposed in air flow communication with the discharge ports of the air distribution manifold, and said air flow apertures being oriented to direct pressurized jets of air onto a freshly processed substrate moving along the travel path.

12. A dryer as defined in claim 11, wherein the multiple air flow apertures are arranged in linear rows extending transversely to the direction of sheet travel, the rows being longitudinally spaced with respect to each other along the travel path, wherein pressurized air jets flowing through the air flow apertures overlap across the travel path, thereby defining an air blanket.

13. A dryer as defined in claim 12, wherein the discharge port means comprises multiple discharge ports in the air distribution manifold arranged in linear rows which are longitudinally spaced with respect to each other and aligned with the rows in the reflector plate, and the discharge ports of each row of the distribution manifold being aligned in flow registration with the air flow apertures in the reflector plate.

14. A dryer as defined in claim 11, wherein one or more air flow apertures in the reflector plate are centered with respect to a pair of adjacent heat lamps so that one or more pressurized air jets are directed through the longitudinal spacing between an adjacent pair of heat lamps.

15. A dryer for use in combination with a printing press of the type having conveyor apparatus for transporting a processed substrate along a travel path comprising, in combination:

a dryer head adapted for installation in a position facing a freshly processed substrate as it moves along the travel path thereby defining an exposure zone between the dryer head and the travel path, the dryer head having a housing defining an air distribution manifold, the air distribution manifold including an inlet port for receiving pressurized air and having discharge port means for directing the pressurized air toward the travel path;

a heat lamp assembly disposed within the dryer head, the heat lamp assembly including multiple radiant heat

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lamps supported between the travel path and the air distribution manifold;  
a support plate spaced from the heat lamp assembly across from the exposure zone and disposed adjacent to the travel path for guiding a freshly processed substrate as it is transported through the exposure zone; and,  
a cooling air circulation manifold having a housing panel spaced from the support plate and defining an air

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circulation passage therebetween, the air circulation manifold having an inlet port for connecting the air circulation passage in flow communication with a source of cooling air, and having a discharge port for extracting cooling air from the air circulation manifold.

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TECHNICAL FIELD